

POPULAR Computing WEEKLY

Atari plans research facility in Europe

Details on page 6

Superbase for
the Atari ST

Communicating
on your PCW

The rise and rise
of computer fraud



Desktop Image by Pirella Göttsche

**SPECIAL
supplement**

THE QL

Desktop
publishing

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POPULAR Computing WEEKLY

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In defence of the small dealer

In reply to your correspondent D W Straker in the April 10 issue, I would like to offer a contrasting set of experiences. First of all I will admit to being a very basic user of the Commodore 64 and a regular reader of your magazine. This, perhaps, may have saved the firm making the same mistakes he did.

Like Mr Straker, I started the year with a resolve to upgrade to a 16-bit machine, and as there seemed to be only one of an affordable, justifiable, price, I also decided on the Amiga 500.

I spoke to Silca Shop, asking what I thought were simple questions about such matters as the mileage of the power supply (I've already had to repair the C64 PSU once, and it's on the way out again), the frame and scan rates of the monochrome monitor, and whether the RGB output was TTL or linear. The person I spoke to didn't know, I spoke to the Atari Helpdesk. Nobody there knew either!

In desperation I spoke to a South East London dealer, Heaven, whereupon a service manager who opened and all my questions were answered. I was also told the answers to all Mr Straker's questions, such as just what was bundled with the machine and the price of all the third party disc drives, etc. I was given such a good picture that I decided not to buy yet - still waiting for the AmigaDT better to turn itself out a bit more. It is a bit odd that I know where from.

I suppose the moral is the old one of let the buyer beware, and let him choose a good dealer.

F McClelland
London SE10

No printer problems here

I refer to Ken Garrett's reply to W L P, Penzance in April 10 issue of *Popular*.

I have had experience with a number of QL and printer setups and can report that with Epson and compatible printers (eg, Shinwa CP80 and clones) there is generally no problem in running at 9600 baud if using the serial bus. The most recent problems I find arise whilst attempting to configure Quil

and the other Posnet programs to run with a specific printer.

The Brother MF108 used by Mr Prichard seems to be a different kettle of fish, and if my friends recently purchased one and could not get it to work at all. The problem was resolved by making up a special cable which, 'below', had pins 4, 5, 6 and 8 wired together. This information should be checked with Brother, which my friend found most helpful. It could be Mr Prichard has a handshaking problem if one of these lines is not connected.

The printer I have dealt with have never required these connections to make them work and I suspect a large number of printer cables sold do not incorporate them.

Rory Cox
Dumfries

Escaping from the Organiser

With reference to the *Posnet Organiser* program, *Exchanges*, which you published in *Popular*, April 3.

The program as billed will form an endless loop when run, which could be rather frustrating for a beginner, who may not know how to escape.

The solution is to add a Quit option to the menu on line five and tag the following line on to the end of the program, just before the END statement.

IF YES=2 GOTO

Mike O'Neale
PISO group

Long live the Stone Age

I would like to present my response to Farewell to the cassette! (Zaggaral, April 17-88).

I have owned a 48K Spectrum and cassette recorder for four years, and during that time, I have only lost two cassettes - not bad for a "primitive system".

In October last year, I decided to "upgrade" to a disk system, after being "delighted" at speed, reliability, convenience, etc.

During the six weeks that followed, I had five drives, both of which were sent back before for a total of three weeks, programs mysteriously wiped out, valid disc commands rejected, data formatted when I tried to

save a program, and only two programs - which I saved properly.

Not surprisingly, I decided to get a reliable - reliability and convenience being replaced with availability and convenience.

Disc drives and discs may not be that expensive, but, for the Spectrum at least, they're about five times more expensive than cassette recorders and cassettes.

The ST and Amiga are in the business/laptop hole in the market, so who would expect them to have a cassette interface?

Last week I bought a Spectrum 128, and unless Amrad produces a very reliable, cheap disc upgrade for compatibility with the Plus 2, I would rather wait 15 minutes for a program to load than face a possible disc drive style fiasco.

Finally, Mr Shepherd, I am not, as your article would suggest, a crazy person using a primitive Quilner manufactured by a madman, but somebody who has had experience of both cassettes and discs and trusts cassettes more.

David Smith
Penzance

Forum for discussion

I would be grateful if you could mention a magazine on card-logs for the QL.

It is called *Forum*, and issue two is available by sending 50p, a stamped addressed envelope and a blank formatted card-logs to Ian B Drumhart at 2D The Broadway, High Street, Swindon SN4 6LP.

Ian B Drumhart
Swindon

The vanishing disc drive

The special feature on consumer rights (April 17) will have been of interest to many readers, although it gave the impression that most problems are encountered with small computer shops and mail order outlets.

My major headache concerns a high street store better known for selling aprons than computers.

Last summer I bought a Micro Peripherals disc drive and interface for my QL. After three months of moderate use the

interface developed a fault, so I returned it to a branch of the supplier.

Over three and a half months later the unit was returned (find the interface, then the disc drive a week later) in a worse condition than when it was taken in for repair. The disc drive sat idle, and would no longer read my double sided discs.

The drive is now with the shop's head office. I have been without the use of a far less and a half month out of the last night, and can still not be given part of a refund or replacement. Surely this is totally unacceptable behaviour on the part of a national chain store?

Michael C Jackson
Burton on Trent

The Amiga vs Atari ST debate continues

I would be grateful if you could give my name entry on the Amiga 500 vs Atari ST debate. I have 1800 to spend on one of them, and require stunning graphics, great sound, and a huge amount of software to choose from.

Do the ST and Amiga 500 both have these attributes? Are they both good for playing games, or? Will more software be written for them ie, the QL, due because of little interest from old time buyers?

George McClelland
Chelmsford

Both the Amiga 500 and ST have graphics capabilities far superior to those on 8-bit machines. The sound chip in the Atari ST is the AY38910; while this is the same chip as in the Amrad 484, for example, the sound potential on the ST are greater, thanks to its MIDI connections. The Amiga contains a custom sound chip and also has the option of stereo output.

Neither machine has a huge software base as yet. While the list of software available is growing for both machines, in the UK at least, the ST is ahead in this respect at the moment.

The machines are both "good" for playing games on, though you should bear in mind that games playing is not entirely what Commodore and Atari had in mind when designing them. Should you wish to turn to more business-orientated applications

later, both will be available.

We believe that software companies will continue to write in ever increasing numbers for the Amiga and ST. Most major houses already include at least the ST in their plans for future releases, and when the Amiga 500 becomes available in the shops later this year, it should be gradually included as well in companies' plans.

Repairing points

Having read your April 10 issue, I feel prompted to write regarding a couple of points.

Firstly, the item in News Desk regarding Amineid, the BBC and the PC1512.

I run this computer department of a large high street store. We have a PC1512 with double drive and colour monitor on display.

This machine is on from 9.00am in the morning until 9.30pm (9.00pm on Thursdays) six days a week. I have never seen any sign of overheating and we have never had any problems with it (apart from when the clock batteries were flat).

All our customers who have purchased one from us have been satisfied and we have had no bad feedback from any of them.

Secondly, I would like to congratulate John Anderson (Letters, April 15). This man has achieved the impossible. He has actually managed to get a phone call through to Vivent!

Tell me, how did you do it? Every time I place the line is engaged. On the rare occasions that I have got through, I too have come up against the "waiting for parts" for Commodore machines, and many of these returned to me "repaired" have gone faulty again shortly after.

Of course, the customer doesn't seem to realize that this is not my fault, so I bear the brunt of their temper.

On the whole though, I would like to say that the service from Vivent is satisfactory and it is not all that often that I have to contact them.

One more point I would like to make is that Amineid computers are by far the most reliable available at the moment. Since we started dealing with the Amineid range, we have had none back from the PCW and PC range, and of the CPCs, we only ever had one £128 monitor returned.

This was returned to Amineid by us for repair, and to our surprise, a brand new monitor was delivered a week later. Surely that speaks for itself.

Name and address supplied

The battle of the computers

I am writing with regard to the test made by Andrew Watt in Letters, March 28. In his test Mr Watt stated that the Amineid PC showed incredible savings for drawing and calculating on the screen. Well, I have done the same test with my Alan ST and CPC Basic and frankly I think the PC1512 is far from "cheating" as Mr Watt would have you believe.

The time on my ST was 14.1 seconds. Timing for the Spectrum showed 41.4 seconds and the so-called famous Amineid PC 36 seconds. In other words the ST was 28 times faster than the Spectrum and four times quicker than the PC. If you

consider the fact that the ST is perhaps the most language to use on a 16-32bit micro (in terms of speed) that is, the reaction of Transal in saying that PCs are more than dated is logical.

The support Amineid has had from the British press is unequalled in any other country. And so it is not difficult to maintain a so-called majority in the British computer world.

But look, dear readers, at what kind of machines you have bought. Spectrums which are completely out of the top 10 in Europe (even MIX) is outstripping their many times, CPC models which use waste 3 inch discs and with very expensive options is changing monitors. Not to mention all those users who had to upgrade from 484 to 654 to the 128K version to the PCW "Jovet".

I think it is time that British users come out of their "national" views of the computer industry and see what the rest of the world has to offer. MIX 2 is good too so are the Amiga and the ST. On the ST I have now five operating systems, GEM-TCO, CP at 160,000 in 1987, the Macintosh (in beta - from Germany and far more compatible than the famous "shambler"), and OS9.

I agree that you could stick with your old Spectrum, but upgrading it for a PC is like telling a bike to use the local bus.

Now, why are there so many business games out there which work with old MS-DOS? Well, it means they are salesman with no knowledge on the subject. So they are buying local bus tickets for the price of a Jaguar. It's not their money of course. No, it's yours.

Barry Reynolds
Bathurst

Forcing black's queen

The readers' latest move in Game Two of the Colnbrook chess tournament is to attack black's queen with their bishop, leaving Colnbrook to move its queen in 15.

Casting your vote

How would you continue the readers' attack? Send your suggested move to either Inter-Medians (Popular Chess), Prospect, Sevenbridgeworth, Herts CM21 9YA (no stamp needed) or Popular Chess Unit 3, The Mailings, Sevenbridgeworth, Herts CM21 0PG (with a stamp).

All entries must reach either address by Wednesday, May 13.

The move which gets the most votes will be entered into the game. Results and Colnbrook's responses will be published in two weeks time.

Prizes

A British Museum reproduction of an chess set will go to the person suggesting the most accepted moves in the end of the game. Five copies of Colnbrook Chess will go to the most consistent winners.

Next week, we return to Game Two, where the Readers are playing black.

Game Two

1	King-e4	Pd7-d5
2	Nf3-e2	Nd7-f6
3	Pd2-e3	Pd5-e4
4	Qd2-d3	Pd7-e5
5	Nc3-e4	Pd5-e4
6	Nd3-d4	Nd7-f6
7	Qd3-d4	Qd7-e7
8	Nd4-e5	Pd7-e5
9	Qd4-e5	Nd7-f6
10	Qe5-e6	Nd7-f6
11	Qe6-e7	Nd7-f6
12	Qe7-e8	Nd7-f6
13	Qe8-e9	Nd7-f6
14	Qe9-e10	Nd7-f6
15	Qe10-e11	Nd7-f6
16	Qe11-e12	Nd7-f6
17	Qe12-e13	Nd7-f6
18	Qe13-e14	Nd7-f6
19	Qe14-e15	Nd7-f6
20	Qe15-e16	Nd7-f6



We're sorry but Popular Computing Weekly cannot guarantee to reply to all letters requesting a personal answer. It helps us enormously if readers are prepared to have general queries answered on these pages so, if possible, please do not send SAGs.

Last week, we printed the first token and order form for the Popular/Simmons Spectrum Micro Source offer. Here is the second and last token you should be sent for yours.

**Popular/Simmons
Micro Source
special offer**
Token No. 2

Atari plans research facility in Europe



The Atari ST - part of Transel's push into specialist technology

ATARI chairman Jack Tramiel has plans to set up a "software centre" in the UK later this year.

This is expected to fill an advanced software development unit, along the lines of Digital Research's Minisat, set up in 1984 to research into hardware technology.

Tramiel is believed to be in negotiation with programming

teams to staff the unit; apparently the decision has been taken to place the software centre in the UK, due to the programming expertise in this country. While in the UK for the recent Atari show, he is reported to have said, "I can smell the success here".

While it is thought that the research centre will be looking

at RISC (Reduced Instruction Set Chip) technology, no details have been released yet.

Atari is also considering setting up a research and development centre in West Germany, which will concentrate more on hardware innovations, and a computer manufacturing plant in North America. The Atari range of machines is currently manufactured in Taiwan.

Jack Tramiel: "I can smell the success"



Amiga 500 on show to over 18s only

Commodore has confirmed that it will launch the Amiga 500 to the public at the Commodore show, starting on June 12.

However, the machine will be displayed in the Commodore Business and Amiga Expo suite, which is only open to those over 18 years old.

The suite is an area which will specialise in new Amiga products for serious home and business use.

Camel Eprom blower now from Alphacam

CAMEL Products' Eprom blower Eprom-PS is now available from Alphacam.

Eprom-PS connects to any micro with an RS232C via PPI, CCR and CTS handshake lines.



Eprom-PS costs £189.95 from Alphacam, and is available for the IBM PC, 8086, QL and Spectrum micros. The price includes a cable and two instructions for QLs.

Details from Alphacam at The Old Millings, 12500 Great Walk, Cambridge CB2 3QJ, 0223 214214.

Digital Research moves away from mass market

DIGITAL Research is to move away from the mainstream operating system market, and will be concentrating on vertical markets and multi-user applications, particularly with its Concurrent DOS 386 system.

However, DR's UK vice president Paul Bailey said that this move would make no difference to work on Gem, the DR operating system packaged with the Atari ST and Amstrad PC2812 machines, among others.

"We have three main markets," he said. "Multi-user micro, specialist industrial auto-

mation and graphics systems on DOS. We are totally committed to all three, although the main focus is on the multi-user markets."

"Gem is absolutely strategic to us; for example, when Atari brings out its new PC in August (see Popular Computing Weekly, May 15), there will be Gem Desktop, Gem Paint, and Gem Write on it."

Bailey also affirmed his support for Amstrad, whose Amstrad being out further versions of its PC compatibles later this year is expected.

Correction

LAST week, we printed a picture on page 13 which we claimed was John Spiller of Micropro.

In fact, this was a distinctly *not* John Spiller of Micropro. The real John Spiller is pictured below.



New micros for Flash Gordon

MASTERTRONIC is converting its Commodore 64 to Flash Gordon to the Spectrum, Amstrad CPC, MSX and Atari 500 machines. The program will be available in June at Mastertronic's MAG range price of £2.95.

Activision and Codemasters in Grand Prix row

A ROW is brewing between budget resuscitators Codemasters and Activision over Activision's release, *Grand Prix Simulator*.

It is alleged similarities between that and the cash-up *Super Sprint*, recently by Activision, which is causing the argument.

Events started with Activision contacting Codemasters, alleging that *Grand Prix Simulator* - already a best selling title on the CPC - infringed its copyright and stating that unless the game was withdrawn from the market, a High Court injunction would be sought and damages claimed against potential loss of revenue.

Codemasters strongly denies the allegation and so far has refused to comply with Activision's demands.

But Codemasters's David Carling, "They're both top-class racing games, but within that restriction, no specific points are the same. I'm confident that if it got to court, we'd win."

To date, both companies have put the matter into the hands of their respective lawyers, and the dispute remains unresolved.

The battle could prove something of a test case. Previous disputes over licensing copyright have usually concentrated on specific sprite design and screen layout - certainly not the case between *GPS* and *Super Sprint*. If Activision wins on the premise that the general game concept is part of the licence, the implications are enormous.

At the time of going to press, representatives from Activision were unavailable for comment.

New report cites harm from VDU exposure

THE most detailed report so far into the effects of VDU on users was issued last week, and concludes that VDUs are harmful.

The report was commissioned by the council workers' union NALGO, and published by the VDU Workers' Rights Campaign. It examined the effects of VDU use on 3,000 employees of the London Borough of Hammersmith, and found some startling conclusions.

Most reports of this nature have proved inconclusive. However, in the NALGO report more than three-quarters of those users who were interviewed complained of blurred vision and painful eyes. Psychological and social effects such as depression were common, particularly among women.

Further problems, such as stress, are caused by computer breakdowns and printer noise.

In other countries, for example Sweden, Norway and West Germany, VDU users are protected by statutory health and safety legislation. But in the UK there is no such legislation, only employer-specific agreements.

"We can't understand the reluctance to have VDUs built in to current standards. It's vitally important that they are," said campaign worker Irene Hamilton.

Hamilton wants to see all VDUs shielded against electromagnetic radiation in the point of manufacture.

"And all equipment should come with an information screen and a detachable keyboard," she went on.

The report is available from the VDU Workers' Rights Campaign, City Centre Project, 32-35, Pychardstone Street, London EC1.

SOFTWARE HOTLINES



Collectors - quite a suitable name for a new games compilation for the PCW, from veterans **Design Design** which, believe it or not, has been around now since early 1982.

The compilation contains conversions of three of its recent releases, *AD&G*, *On The Run* and *211440* which, **Design Design** say, covers all the ground between shoot-em-ups and problem solvers that should "satisfy even the *Montezuma* mod" fan, adds, if you had a *Montezuma* mod, would you buy a PCW?

Another suitable name, **Scalable Software**, whose previous efforts include *Starburst* and *Pixelator*.

Scalable is an Essex based programming firm consisting of Jon Hale and Chris Yates who have just written a great little game for Cocom, called *Whirl* (two screen shot below), in which you play the part of a wizard and his cat. What has happened is that an evil mouse has stolen all the columns out of the eight levels of the game, a situation you must rectify.

As you might guess from the title of the game, there's quite a lot of *fourthly* involved, as your wizard is in battle form for most of the time, but there's one half of a lot of shooting as well, with an *on-screen* thing *critically* inspired by *Hammer*, of all.

The vital extra power to call in the cat, which appears as a smaller ball, following you around - but under independent control when the fire button is depressed. It's with the cat that you have to collect the drops of paint that fall in the ground when you see certain dots.

But at the end of play on *Collectors*, *Spectrum* and probably *Amstrad*, too, it's well worth a look.

But, let's face it, there are times when nothing but a lot of gratuitous violence will do, so why not look up *Protections*, from **Infogrames**.

On ST now, with 5.6k versions following, you are faced with the front of a building, around which you smoothly swirl, blowing away gangsters that appear at windows, under drain covers, etc. Failure to do this within a strict time limit will result in your demise. Good stuff.

Why? Licensing deal of the year, the kids will love it, but adults will not find a word in the sales and it could be the saving of the whole of *August Press Software* - from **Cassidy**, the Tale.

But wait. No *Play*. No *goals*. It's a shooter, still, if only they can get *Type Trees* to ban it, who knows...?

John Cook



DIARY
DATES

MAY

9-10 May
**The Electron & BBC Micro
User Show**

Address: Holford Hall, London
Details: Software, hardware
and peripherals for Acorn's
machines

Price: £3 adult, £2 children, £1
discount for advance booking

Organiser: Database
Exhibitors

061-455 8635

JUNE

12-14 June
Commodore Show

Address: Hammermith
Details: First public showing of
A500 and A2000 Amigas
Price: £3 adult, £2 children
Organiser: Database
Exhibitors

061-455 2981

30 June-2 July
PC User Show

Address: Olympia, London
Details: Hardware and
software for all users of 8088
PCs and compatibles

Price: £5
Organiser: EMAP International
Exhibitors

01-636 1161

JULY

10-12 July
Amstrad Computer Show

Address: Alexandra Palace Pavilion,
London
Details: Displays and
demonstrations of all latest
hardware, software and
peripherals for Amstrad
computers

Price: £3 adult, £2 children, £1
discount for advance booking

Organiser: Database
Exhibitors

061-455 8635

Prices, dates and venues of
shows can vary, and you are
therefore strongly advised to
check with the show organi-
sers before attending. Popu-
lar Computing thereby can-
not accept responsibility for
any alterations to show
arrangements made by the
organisers.

Off the Hook follow-up
tape to aid NSPCC

A **CHARITY** tape in aid of the NSPCC is to be launched this summer, "probably in June".

The organisation behind the production of the tape is being co-ordinated by Rod Cousins of Aethelstan, as a follow-up to previous ventures, *Sofstad* and *Off the Hook*.

"The compilation is in the final stages of assembly," said Cousins. "It will include items by Angus Pears, Digital's Night Gumar, Reader's Digest

and Graham's Monty on the Run, so far, and there will be lots more in all."

The compilation has been put together in conjunction with the NSPCC, which has donated packaging, and will sell the tape in its own stores. It will also be available in normal computer outlets. The compilation will be available for *Speakers*, *Connectors* and *Amstrad* machines, and full details will be available in the next couple of weeks.

So far, the software industry has raised more than £25,000 for the NSPCC, mainly from its 1988 dinner last December. But Cousins says that about 10% of the money pledged by participants has still not been paid.

"I hope that we'll raise more than £100,000 for the NSPCC," said Rod Cousins. "That will make it the third year running that we've raised over £100,000 for charity, after *Earl Hall* and *Off the Hook*."

HGS word
processor
out in UK

MSA Microsystems is selling *Graphewriter* for the Apple II/5. It's in "California" company (Delphi).

Graphewriter is a page layout program, incorporating word processing and drawing functions. All mouse controlled. Graphics can also be ported over from other programs such as *Paintworks Plus*.

Graphewriter costs £149.95 inclusive. Details from MSA Microsystems, 160 High Street, Tisbury, Wilt TH9 2HT, 02686 4276.

Audiogenic needs
programmers

AUDIOWARE, admitting that it is no longer in the top ten of software companies, is starting a recruitment drive for programmers.

The company is offering an Amiga 500 for any programmer it takes on whose program then makes the top ten in the Gallup software charts. An Amiga 5000 goes to any programmer whose product makes it to number one.

Audiogenic can be contacted at 10 Children Enterprise Centre, Station Road, Thame, Oxfordshire, OX9 3DQ.

Silent Service banned
in West Germany

The simulation game *Silent Service*, by Microprose, has been banned from open sale in West Germany.

The ban comes under the Youth Dangerous Publications List legislation, apparently *Silent Service*, which simulates a third rate II submarine operation, is "too realistic".

The decision means that the game has been relegated to regulated outlets such as sex shops.

Microprose's president, Ed

Stashley, plans to appeal against the ban.

Microprose has moved into the hardware market with the announcement of a second joint venture agreement with a UK company.

Following last month's deal with Origin, Microprose has signed up with Sunbeam, to distribute its range of peripherals and peripherals, including monitors and accessories such as disc storage cases and printer stands.

Major Bill Steiner of Microprose with some of the company's "adventurous" products



TECHNOLOGY SO ADVANCED ...

PERFORMANCE
 - 100% silicon based system, 640
 - 100% silicon based system, 640
 - 100% silicon based system, 640

ARCHITECTURE
 - 100% silicon based system, 640
 - 100% silicon based system, 640
 - 100% silicon based system, 640

DATA ENTRY
 - 100% silicon based system, 640
 - 100% silicon based system, 640
 - 100% silicon based system, 640

GRAPHICS AND SOUND
 - 100% silicon based system, 640
 - 100% silicon based system, 640
 - 100% silicon based system, 640



520ST-M - SOFTWARE
 100% silicon based system, 640

SOFTWARE
 - 100% silicon based system, 640
 - 100% silicon based system, 640
 - 100% silicon based system, 640

OPERATING SYSTEM
 - 100% silicon based system, 640
 - 100% silicon based system, 640
 - 100% silicon based system, 640

APPLICATIONS
 - 100% silicon based system, 640
 - 100% silicon based system, 640
 - 100% silicon based system, 640

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Load it

Help is at hand for all users of Commodore's CSM database readers. Load it claims to solve alignment problems and, worse, for all. Chris Jenkins checks it out.

Spectrum keyboards

Anthony Reid takes you through a Q&A project to build your own Spectrum keyboard. If you're still suffering with the rubber keys, or down on your hands and knees picking up loose keys from the Spectrum Plus, this could be the article for you.

Software

Everything You Ever Wanted to Know about Graphics, the Universe and Everything on the Z88, or... that's a present title! We find out just how comprehensive it is. Plus Maxam II by Amiga, an assembler and monitor for Amstrad OPM Plus.



Amstrad DMP4000

Tony Randle tests Amstrad's latest printer, promoted for the PC1612 range, but compatible with any micro with a standard parallel printer output.

Programming in C

Rene Garach continues his series on programming in C, taking you further into programming techniques.

Z88 DELAYS CONTINUE

Oh! Clio (Singer's Z88) portable machine is suffering further delays and first orders are not now expected to be delivered until mid-May. However, Sir Clio is already taking in orders about the possibility of stocking the Z88 in the summer.

He puts the delays down to changing the software suites together as a whole. "It's still not complete - we've got the disks, now they need to be merged into one."

Sir Clio would not reveal how many orders had been placed

for the Z88 so far, but he did add that he was selling up a second production line for the machine, in addition to Thom's design.

"The deal hasn't been signed yet, so I can't name names at the moment, but the second line will be there," he said.

The Z88 - still not delivered

Locoscript II
now due in
mid-May

The "imminent" release from Locoscript Software of Locoscript II, the long-awaited upgrade to the word processing software bundled with the Amstrad PCW machines (see Popular Computing Weekly, April 17), is now scheduled for mid-May, with the first copies going out around May 12.

According to Locoscript, of those who have already ordered the program will have been advised by letter of the probable dispatch date, and it was emphasised that no cheques would be cashed until that time.

Mastertronic drops
Melbourne's
Gadget

FOLLOWING the move, last week, of the majority of the Melbourne House staff to the Mastertronic Paul St offices, came an announcement concerning the sale of the Melbourne House game, Inspector Gadget and the Circus of Fear.

Inspector Gadget, which had reached an advanced stage of production, with review copies already sent out in the press, has been withdrawn.

According to Mastertronic's Frank Herman, the reason's behind the decision were simple. "It wasn't as good as the average Mastertronic game - so we couldn't justify giving full price for it," he stated.

Programmed by Australian software house, Beam Software - author of much of the Melbourne House output - Gadget was an arcade game based on a French Clonus-like cartoon

character, and according to Herman, Beam has "accepted the decision as fate."

The software industry has not taken the loss of Gadget too hard, as the licence has been maintained and another game based on the character will be written by Beam, with release around the time of the PCW Show.

Herman continued, "We're committed to producing super software from Melbourne House," adding somewhat bluntly, "It would have to be super to be as good as Mastertronic."

✦ The first two arcade machines from Acacia, the new Mastertronic financed coin-op designers, have already been completed - including a product under the name of Rockford (see next week's Meltronic for details).

RPGs in new
TV series

ANGEL TV is to transmit a networked series of role playing games in September. The series will take the form of an actual game, Knight Mary, being played on air.

Although it will be screened during the late afternoon, Angel hopes it will attract a number of adult viewers.

Computer game rights to Knight Mary are expected to be announced within the next week or so.

Electronic Arts
gets Batteries

ELECTRONIC Arts has acquired Batteries Inc., the Canadian software house best known for its Paperacy word processing package.

The deal should make Batteries products more readily available in the country - Electronic Arts recently set up its own office in the UK (see Popular Computing Weekly, March 27).

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CRIME AGAINST COMPUTERS

Computer crime is not an area that most people take seriously. But quite a lot of damage can be done by computer criminals, and, as John Bissenden reports, the trend is growing.

They call it "white-collar crime" if for all people don't take it seriously until it happens to them. But the problem is growing all the time.

It used to be a blanket term for company fraud. But it now most closely linked with computer crime - fraud that arises, value tags, forgery or other misuse with a computer system.

The effects of computers are growing in all directions. There are more systems in use. Computers are handling more information. They are becoming more powerful and complicated. And more people are using computer systems.

So a major net result of all these factors is the growth of computer-related crime.

The idea where most computer systems are used is within companies' business systems. So it is here that most computer crimes are committed. Some are plain fraud, committed for financial reward.

But others are more concerned with the computer system itself, and causing damage to it. This could be sabotage or malicious damage by someone outside the company, or by an insider. This could take the form of physical attack, eg arson, or more often gaining access to restricted information, or even tampering with programs so as to cause loss and irreparable internal damage to the system - locking. A third major area is software theft, or piracy. Computer-related crimes are hard to define, hard to quantify, and even harder to spot. Why?

Detective Inspector John Austin is in charge of the computer crime unit at Scotland Yard. His team is part of the company fraud department at the first level, and it is their job to deal with a whole range of computer-related offences.

It's the kind of crime that has a high public profile. It makes good news copy, and it's good box-office news as well - the young whiz-kid who gets caught fiddling millions of dollars out of a company, or the teenager who accidentally starts World War III on his home.

But although the publicity is sometimes nasty, that aside, for most of the time it may be routine, or even unknown.

To publicise it means whereby a fraud has been committed, sometimes for large amounts of money, and it just so happens that a computer system is the vehicle that

just possesses through the information," says Austin.

We've had several occasions where somebody's stealing money from a bank

"It's the kind of crime that has a high public profile. It makes good news copy, and it's good box-office news as well."



Detective Inspector John Austin in charge of computer crime, Scotland Yard.

government authority, and there's a department of the banks that deals with thieves and magics, and they just write out the form. Sources from dubious sources, spenders personal, and then it just goes in a box. It's open to interpretation as to whether that is a computer crime or not.

Another problem is that if a company discovers that an employee has been carrying out a fraud or other crime through the computer system, they are often reluctant to report the fact to anyone, including the police.

Some industry watchdog bodies, such as the Federation Against Software Theft, have put out claims by FACT recently that software theft is costing more in costing the industry £150 million a year. But Austin agrees that certain factors make it virtually impossible to gauge the size of the problem.

How long is a piece of string? I think it's far to say that there is a definite sequence in recent crime that's computer-related, more than say a person being mugged in the street or having their home broken into, because there are obvious connections from the point at the victim - a certain amount of publicity or embarrassment which can reflect itself back on the victim, whether it be a company or a person.

So I think that that is a far extension of perhaps who there is some reluctance. Although it is no good saying for hard evidence or it.

One thing they try to warn people about a little - I think that there are people who work in computing who are addicted to it, in the sense of they just won't leave the same things alone.

They'll play chess in their lunchtime, they'll go home, they'll read, they'll play Space Invaders if they're bored. There's a danger from people like that because they're a class of person.

This is the dilemma - if you want the brightest of bright young whizz-kids, as more than likely will be hooked upon his subject. But there are dangers in people who get hooked upon computing.

Do they deserve the possibility of being detected?

I don't think they do. If there is one thing that's rather unique about people who commit computer crime, it's that they tend

Continued on page 149

SPECIAL FEATURE

Continued from page 12

"The area where most computer systems are used is within companies' business systems, so it is here that most computer crimes are committed"

to be first offenders. But that does tend to be rather small with the rest of crime.

So how can the police attempt to combat computer crimes? Do the police Crime Prevention Department have a role?

They have quite extensive IT companies, but the sort of crime prevention area that they cover is slightly different. It covers what they will cover the physical side of securing policies, controls, etc. we tend to look and talk more about the logical and procedural side.

It's talking about access levels, password controls, data processing procedures, emergency, what description of use it is necessary, supervision of personnel.

And I believe in say it and don't. What I mean is, that if I make a point, for instance about the use of passwords, we are in a position to give an example perhaps of an instance where that has led to problems.

"So it's all very well and good people talking about this should do this, one should do that, but if you can show people by example, although not named explicitly, of the sort of things that have occurred, it brings it home to them."

Even if you had a large establishment where you had a computer operator who's separate from a computer programmer, in my experience you often find that the operator is studying at night school to be a programmer anyway. And the programmer is studying at night school to be a systems analyst, and the analyst is studying to be a DB manager.

So one never takes it for granted that because somebody is a mere data entry clerk that they don't know how to load a card into a machine, because they probably do.

I started four years ago that if we were going to provide the public with a service, the police force that was going to give them specialist expertise in this field, that it would be necessary to put ourselves on something of a public platform, by going out and talking to people in the industry.

We needed to make them aware of what we saw as the dangers and make the sort of things to look for to make their sense of the issues that can be sustained that determined attack on a computer system and at the same time, to let them know that we are here not only to investigate crime which is our primary role, but also to offer advice.

"And putting by my pointing and the telephone calls that we get, the latter has become the former."

The area of computer crime that has had most coverage recently is hacking. The most recent success is data busting, where that is an example of how the unit covers connections in the very difficult area that is hacking, as much of a danger to some people believe?

I think that it is probably more hype. The hype that's generated tends to encourage people to try and do things that they can't do.

Your normal teenager who's got a BBC micro and plays games on it, is quite a bit of our youngsters do get bored with that and then they buy a modem and suddenly they're interested in public exchange networks, and probably think they have more capability than they do.

I think there's a lot of hype from generated about so-called secure systems like banking systems.

New software technology is produced and whatever weaknesses one can put to a machine it is not possible with your BBC to play banking and things like that, you can't do it.

Two Forgery and Counterfeiting Act of 1986 refers to the making of false money, with the intention to accept what is for manual or electronic. And that's the Act upon which we prosecute bankers.

Now what I mean by that is let's say you and I work for the same company. You have got access to the payroll system. I haven't got access to the payroll system. Now, what your password number is, I can do a considerable amount of things to try and get your

password.

Immediately I attempt to do that, I commit forgery to the database.

Now this is particularly pertinent today to these ATM machines, these cash dispensers. A lot of people are under a misapprehension that if I find a card in the street, if I don't know what the number is, there's no way that I'm going to find out what the number is. But let's just say it's topped to reach that card into a machine and so I don't know, I'll tap it once, two, three, four.

What people may not realise is, that by doing that, putting in one, two, three, four, they are attempting to forge an account.

Finally, how does Austin think that people, including the police, can be more aware against fraud or damage through new computer products or systems?

It is knowing what to look for, there is a certain amount of knowledge obviously that you have to be gained on part of the investigator to know what one is going to go for.

I completed a course at the National Police College specifically for their officers from other forces. The outcome of that is so that each police force in this country will have at least one officer who is computer aware.

So we're doing a taking experienced detectives and we're focusing them up with some computer knowledge sufficient, one knows, to be able to deal with the evidential requirements of computer-related crime.

Being as stated that some people spend their whole life in the industry and we don't know it all, there's no such thing as a computer expert, but they do not mean.



Austin: "We are here not only to investigate crime, but also to offer advice."

Let your PCW do the talking

Lacking an RS232C interface, the PCW hardly seems an ideal micro for communications. Peter Wootton tries out Miracle Technology's WS4000 modem, which could change all that

Computer communications has come through a rapid revolution among computer users.

Enthusiasts refer to it as the best thing since the computer itself. The majority of users look on it as something potentially great - with a heavy emphasis on 'potentially'.

But it's easy to overlook how far things have come in a few years. It isn't so long since communications-related microcarts, still operating at 300 baud, and the only thing to connect to was an analogue fax or a dedicated bulletin board.

Now there are hundreds of bulletin boards, all of them accessible (and the majority of them highly professional).

There is also a host of commercial services from the ubiquitous Prestel to electronic mail facilities.

And, not least, there has been constant development of the modems themselves. Today, for sub-£100, you can have multi-rate, 'intelligent' modems in commonplace.

But some computers remain better suited to communications than others, and if you need to pick one that could take a load in the coming months, you'd probably tag into Amstrad PCs.

For one thing it has an RS232C interface - the primary requirement of virtually all communications. And the lack of colour and expensive graphics put it behind the lead to services like Prestel.

Now PCW owners have been given a boost by Miracle Technology. The speech-based modem maker has released a special version of its outstanding WS4000 intelligent modem.

When coupled with a good software package like Sargent's ChatMail (see page 46), the WS4000 allows PCW communications to hold their heads high.

Features

Instead of the normal RS232C cable, the version of the modem has a ribbon cable connecting to an edge connector that plugs directly into the PCW's expansion bus.

The means that using the modem to the micro is simple, and eliminates the need to buy an extra interface.

Miracle Technology has established a reputation for quality in the modem market, and this version of the WS4000 will do it no harm.

The modem is based in a rather striking shell of red, but it is well built with good connections to the serial, phone and power cables. All cables go into the front, and, as a result, the rear of the unit which also features a serial fault.

The modem itself is a nice and simple to operate, and resembles a telephone on legs, but the ribbon cable is of precisely the right length to give you only one possible position - immediately next to the right side of the monitor.

Since this is where 80 per cent of PCW owners will have their printers, some rearranging of the desk will be necessary.

Pressing the reset switch, and turning the cover on and off as the modem is as much as you can do from the outside. Everything else is controlled through software. For the reason, you'll need a decent software package to get your money's worth from the hardware.

Along the front of the modem is a row of status lights. These include power on, high speed ready, on line, transmit ready, to send to speed, error to send, carrier detect, send data, receive data, and data transfer mode.

"Miracle Technology has established a reputation for quality in the modem market, and this version of the WS4000 will do it no harm."

These lights may be off, thinking is slowly on, depending on the modem's activities. Once you become familiar with them you can determine at a glance the status of the modem, and whether it is functioning as expected.

You can watch them putting out the number being dialed, and you'll also see

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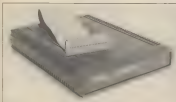
6 HINTS

7 HINTS

8 HINTS

9 HINTS

0 HINTS



Microware Technology's WS4000 modem

the resulting take - ringing, engaged or unavailable - taking, once dialling is complete.

The modem itself is fully programmable - either through your own programs or through suitable software. For example, you can set the time the modem will ring, a number before it gives up, how long it will wait after answering for a clear signal, how long after a carrier is lost before the modem hangs up (useful for overcorrecting telephone signal losses), whether the modem should reply an engaged number, and so on.

The WS4000 is a full-rate modem. The model under review supports full 300 and 1200/75 protocols and 1200/1200 full duplex.

In auto-answer mode you can set the number of rings required before the modem answers, and there are very powerful automatic search commands. For example, you can tell the modem so that it will try and determine the speed of the incoming line, search, match it if it can, complete the

connection.

The accompanying documentation is thorough and clearly written, with a host of practical examples. In addition to the relevant user information, there's a section for potential software authors containing some detailed technical specs.

Conclusions

The WS4000 was named 'premier' of the year in last year's British Micro Awards, and was a deserving winner.

There are cheaper modems around, but few match the WS4000 for features, and almost all of them require the purchase of an RS232 interface as well.

Amstrad PCjr owners looking for a high-quality modem at a reasonable price should put it high on their list of potential buys.

Product: WS4000 RS232 modem **Price:** £195.50 **Supplier:** Microware Technology, 10 Peters Street, Ipswich IP1 1JQ

Comms software: ChitChat

Although buying a full-featured software package is not an absolute essential for using the WS4000, it is recommended.

For some with - some bulletin boards, and electronic mail facilities - the Mail200 program that comes free with your PCjr system software is adequate.

However, if that is the limit of your ambition, you're probably buying too much power in the WS4000.

Accessing viewdata

To access viewdata services such as Prestel, Micronet and many 'amateur' bulletin boards, the accompanying MicroPhone, you will need a viewdata terminal program.

For the purpose of this review we borrowed a copy of Juggernaut's ChatChat Chatlet package, and it turned out to be an admirable partner for the modem.

The Combe version includes both view data and email facilities (they are available in separate packages) and is powerful enough to take advantage of the WS4000's features.

Directories

You can create your own directory of phone numbers, together with all necessary protocol details, log-ons, passwords, etc, and simply tell the software and modem to get you there.

You can also create executable files to control the more powerful facilities of the modem.

The documentation is more than adequate, especially since ChatChat is primarily controlled through the pre-programmed function keys which are permanently displayed on screen. This coupled with on-screen help facilities make the manual almost redundant once you are familiar with the features.

Prestel and Micronet

The viewdata mode is a revelation. I was dubious about the prospects for the highly colourful Prestel and Micronet systems on a grainy-screen monitor with a rudimentary character set. But all of the screens were perfectly legible.

At 14400, the software performed flawlessly. The combination of ChatChat and the WS4000 make for a perfect camera system for all applications.

Program: ChatChat Combe **Price:** £120.00 **Supplier:** Juggernaut, 16/1 Havel Road, Centre, Gosforth, Newcastle Upon Tyne NE3 3GB.

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Precision sets new records with Superbase Personal

Precision Software, best known for its Commodore 64 word processing and database programs, has turned its attention to the 16-bit machines with Superbase Personal. Christina Erskine finds it combines power with ease of use

Precision Software is gaining recognition for its Superbase and Superbase Database and word processing packages for the Commodore 64. Therefore it would be a logical assumption to see Superbase Personal for the Amn 51 as simply a conversion of the C64 product. Logical, but according to Precision's managing director John Tennant, completely incorrect.

Tennant - and he should know, his brother Simon wrote both programs - says that Superbase Personal has been written

entirely from scratch. The name Superbase being duplicated only to give the product a familiar identity with potential buyers.

Superbase Personal runs under Unix, a Cern-based version is also available for PC compatibility and uses the familiar drop-down menu, etc. running at medium and high resolution modes only.

Getting going with Superbase is rather deceptive. It's incredibly simple, and for the first time the program's power. You might expect a menu-driven database to be complex.

It is controlled by sub-menus, sub-sub-menus, and so. Cancel option just where you wanted it, but in Superbase's capabilities are accessed by the command at the top of the screen. You would find the Data, Edit, Log, Options, and a string of empty or disabled items at

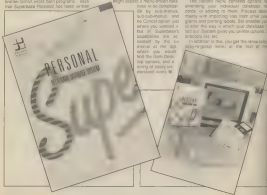
the bottom.

For instance, once loaded, Superbase gives you the choice of Data, Help, Select, Process, Set and System menus.

Data simply gives you the page(s) message. Help is the menu you will need straightaway. It's options deal with opening, creating, editing, etc. your files and indices. On that up, many menu options are unavailable, these are shown in linked rather than block type.

The Record menu contains options for amending your individual database records, or adding to them. Process deals mainly with importing data from other programs and printing reports. Set enables you to alter the way in which your database is set up. System gives you printer options, a directory list, etc.

In addition to this, you get the amazingly step-by-step, menu at the foot of the



SOFTWARE REVIEW

screen for flipping through, viewing and creating your records. The menu commands allow creating more than a passing acquaintance to the controls in a tape recorder.

That <F> allows the next record in the file the one immediately previous, <N> is a fast forward - display all following files, <C> a record - display all previous. There are also pause and stop buttons.

The <I> icon allows you to search for a particular file by typing and value from the field in the record you want, and the program will bring the requested record up on screen. However, the key symbol for manipulating your database is contained in the toolbar.

There is the filter option, which enables you to view just a part of your data according to a set of parameters which you determine. You select which of your fields you want to manipulate and then filter you with them manipulated. The symbols as shown in the toolbar indicate are clearly self-explanatory: the symbol for greater than, greater than or equal to, lesser than, lesser than or equal to.

UPC™ applies all test strings, <F> to

summary. You set the parameters, then select by typing in the information in the Value box; for example, Lastname (last) [A-Z] gives you all surnames on the beginning with A, B, C or D.

Creating files and records themselves is also made easy. The number of fields is increased with the restriction of 255 characters per field (though surely for most people). Multiple data can be entered in a number of ways (including in how you wish) presented in a screen, similarly with data.

One of Superbase's most attractive features is its ability to pull-over files from other packages. For this, there must be some format before copying, however, as Superbase's ability to incorporate pictures from graphics programs - so long as they run under GEM.

The most obvious uses for this are slides, charts or pictorial representations of data, then which you may want to incorporate in standard letters.

Conclusions

What I have talked about most of all, is it

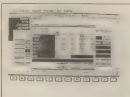
worth noting that the Superbase manual (which is clear and thorough, with plenty of tutorial sections) does not attempt to explain databases, it assumes you know the terminology and how databases work.

This article by no means exhausts the program's options and capabilities, but attempts to give an overview of how it works and what features.

I found it versatile and comprehensive, and incredibly easy to get into. Certainly, it is a bit in part of GEM and the simplicity of mouse control, but all credit to Precision for not complicating the matter.

If you feel you could do with a database program for your Amiga, PC or compatible with Gem or Amiga SP, Superbase Personal is worth close investigation.

Program Superbase Personal Morris Allen ST, Commodore Amiga, IBM PC compatible with Gem operating system, eg the limited PC/XT/AT PCs and ST 100-50, Amiga 1040-85 Supplier Precision Software, 5 Park Terrace, Newcastle Park, Surrey KT14 1JZ.



Screens from Superbase Personal. Above: into the 'tape recorder' style system menu for viewing your records. Right: the filter system enables you to sort records according to a large number of criteria.

Filter

Filter ADDRESS

Title	AND	+
Forename	OR	-
Lastname	NOT	*
Street	LIKE	/
City		
Code		
Country	Value	

KE "USA" OR Country LIKE "JUST GROWN"

OK Clear Cancel

Guide to databases

A database is basically a computerised filing cabinet, used for storing records in databases of all sizes. Alternatively the information can be indexed or related according to the various headings you've used within each record. You could, for instance, list all your friends living abroad, or all business still doing charity, after a year.

Many databases have an integrated mail manager or label printer within the package. You can then print address labels of all, or some, people on your database according to the index you have made.

File Collection of records is usually under the database program.

Records Similar to each file or sheet in a filing cabinet.

Fields This is the name given to the headings within each record. For example, in a simple address book, database you have might contain: first name, last name, address, date entered into file, street, town, district, country and postcode, telephone number, etc.

Relational database A database which allows you to sort your records according to multiple factors. For example, print out all records showing people whose surnames begin with B, living in Yorkshire, have 2-4 children, play a hobby or sport, within a specific location, and don't own a dog.

Having the ability to print out all records with people whose surnames begin with F is not enough to qualify as relational. Superbase is a good example of relational database.

Integrated database A database program which can use and incorporate information from other programs - usually the database will be part of a suite of programs in one package - and whose data can be incorporated in the other programs in the suite.

Mail merge Printing standard letters, labels or forms where only the name and address, for example, need be changed from sheet to sheet. You specify whose name is to go in the gaps, and each letter, addressed to each individual, is printed out.



with **Kenn Garroch**

The Sord connection

At Sordex, or otherwise, London NW11 1JH

Q I've just bought a Sord colour monitor (second hand) which I'd like to use instead of a TV, with my Spectrum and QL.

I have now discovered that there is a different plug on the back of the monitor to my composite video phone (Horus) that plug on the Spectrum and certainly the QL. I realise that the Opus output is monochrome and have made the well known 'tap from the modulator' modification as well. This appears as a phone socket at the side of the Spectrum.

As I got the monitor cheap, I was too thrilled to check it out. I'm not sure what type of signal the monitor expects.

I enclose a diagram of the plug which appears at the back of the monitor. The model number of the monitor is 948R-146.

I hope that you can help me with this problem by supplying a pin for pin diagram or something that I can make into a converter lead if that is what is needed. I'd really like to find some way of making both computers work with this monitor, but any help at all would be appreciated.

I might be able to afford the Adapt RGB Spectrum interface if necessary - will you comment on this, or suggest some other alternative?

A I don't know what the connections are for this monitor. However, there is a way of finding out by educated guesses. If the monitor is a RGB then there will be Red, Green, Blue, Sync and Ground connections. If it is composite video, there is just one colour input and ground. If they all connect, have both pins there are straight connections available.

The way to find out is to take the composite output from the Spectrum and split it into its two components: video and ground. If you connect the ground to the colour at the socket, with any luck, that will be ground. Next, join the video output from the Spectrum into each of the holes in turn.

If you get a test, green or blue screen on the monitor, then you have found the R, G, or B pins respectively. If you get a picture, then you will have a composite input. Once you have this, you can ground one terminal to each of the other leads to find the ground again. The picture should manifest when you get the correct combination.

If the back of the socket, it is more likely to be RGB than composite for having found the R, G and B inputs, you need to find some way to be able to connect the QL's RGB lines to the appropriate holes, and then joining around with the same line to get a stable picture. If it is RGB only then the Adapt interface will be needed to get the Spectrum to work.

Make sure that any test connections you make are only brief, the voltages used are small and it is unlikely any damage can result if you are careful.

If all else fails, someone will hopefully write it and tell us what the connections really are so that I can put them



Sord colour monitor 948R-146 socket

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem, **Peek & Poke** is to Ken Garroch and every week he will take back as many questions as he can. The address is Peter & Rose, PCRE, 10-12 Little Newport Street, London WC2E 8PN.

Baffled by the BBC bytes

Don Harcourt of Claphamton in Devon, Devon

Q I have a Master 128 with one 8" disk drive, a KX1000 printer and a VGA. In the March 27 issue of *Popular*, you published three programs for the BBC. I have just entered the sideways print utility. Having just spent the last hour double, triple, and quadruple checking my typing, could you please clarify a couple of points of interest to me?

1) Why does the program stop at line 80 with 'Byte at line 80'?

2) On re-entering the line at 80 with 'Line 80: not found', it then prints a solid line down the left hand side of the screen and stops.

I'm baffled.

One other point which you might be able to help me with is this: I deliberately omit the semi-colon in line 185 between the `and` and the `?` so that the line reads `185:POKE 16250,16250:144A`. The program stops with no error code, namely the message 'at line 160'. Why the machine prints at line 588 with no error code is a new mystery to me. I find that the Master does this reasonably regularly and wondered if you could offer an explanation.

A This is not really my department but just this once, I'll help out. Your problem is mainly due to the fact that the listing is wrong. You can make it work by changing line 160 to `16250:16250`, 162 is, drop the `144A` as well.

These commands need to be placed further down since V is corrupted by the MPPE utility. Change line 132 to `PLA`.

Take out `800`, swap out `_AMP` for `AMP`.

Line 80 reads `1000:AT 100A` `ACPIR 100` which will only give you the byte one if you put a `?` before the `ACPIR`. This is because it is impossible to get a value larger than 255 (255 is the accumulator `ACC`).

The program works by using the `144A` command to store the string you want to print at the location pointed to by `16250-8`. On using indirect addressing (`100A:16250-8`) each character in the string can be read.

The definition for each character is then obtained with the `100A:16250-8` (`ACPIR 100`) command and stored at `ACPIR` on words. The character number for the call is placed in `ACPIR`, e.g. at the start of the definition buffer.

The next section of code turns each character on its side by shifting each bit of a row into a column at the definition of character number 255. Character 255 is then printed followed by a blank and a bit to repeat for the next line.

The use of character 255 is why you get a line down the side of the screen (Char 255 is a solid block). As it stands, the program will not accept the definition properly. The `144A` command uses the vector `16250-8` to point to the source code, normally bad command.

Your second point, concerning the `at` line with no error code seems to be due to the program being at fault.

Usually the no error code situation only occurs up when using machine code routines from other programs.

If the machine code does something unexpected, the BBC integrates generally then it's a clue as to what has caused the error and so, being able to assign an error message to the fault.

For example, if you run the sideways program or that it sets up the `144A` command and the `16250-8` (put in `ACPIR` command) and then `100A:16250-8`, you'll find the no error situation occurs since the machine code is doing something rather unexpected.

Incidentally, if you taking the code out of line 160 that I got it is a syntax error at 150. This could point to a difference between the 128 and the code BBC II.

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THE SINCLAIR QL

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Exclusive review of Digital Precision's IBM-type keyboard

Never forget, when computer owners say that the QL, for all its faults, was the first affordable 68000-based machine. Apart from the Amiga, it is still the only 68000-based machine offering true double-precision. The Atari 50 doesn't.

Support for the QL, then, is still strong. There were and a small number of third party software and hardware manufacturers.

In this supplement we're looking at Digital Precision's replacement keyboard - IBM quality for your QL. We also have an extensive preview of the desktop publishing software package, which contains plenty with view of use.

CAD software from British sources, and Easymark's advanced menu systems, among many others, go to prove that the QL is far from obsolete. ◀



NEWS

WIFEY

Housewife is a housekeeping program from DPM Software. A real housekeeping program. Nothing to do with computing activities. With QL Housewife, you can make up a personalised shopping list based on your usual shopping habits, and choose a choice of three recipe programs, for starters, main courses and desserts. You can store any number of guests from 1 to 20, and you will be given the recipe of your choice with the correct quantity of ingredients. All quantities in metric and imperial, cooking temperatures and so on, options in print out.

Obviously a most a dainty program! However it costs \$1.99.

DPM Software, 15 Pinedale Close, Newbury, Berks RG20 9RL. Tel (0329) 831701. ◀

REVIVED

PAGE Software of Birmingham is still adding programs to its list, and now has over 25.

Recent additions include Lectures, a file recovery program which operates on all or any hard files (and not only, as the subsidiary might perhaps expect, on Perbit, SSI, and an Access generator for SSI).

Cash Tracker, a debugged, extended and speeded up version of the original Spend. Cash Tracker is now available to one owner at \$50 as well as an option to registered users at \$20.

Name And Address is now available on disk as well as in cassette form, in standard Archive or Arch-85H versions. The access

feature of this popular program is a "secure" procedure allowing data to be locked up tightly before the changes are finally saved.



PRG, 45 Frederick Street, Birmingham B1 3SL. Tel 011 233 3042. ◀

TURBO

Athens Consultants has produced a program which re-configures itself to speed up the course, which, along with other small changes, effectively speeds up the whole program and - we would venture to propose - writing more than the old better - processes work throughout.

QL Turbofill costs \$15 and can be ordered from Athens Consultants, 13 Hill

Drive, Farnham, Surrey, who can also provide more information about the program. If ordered, please quote the review of your Qull so that a matching Turbofill version can be provided. QUINTUS...BUT does not mean with Turbofill, so the default parameters of Qull have to be set up before the turbo program is applied - for the screen is speed it will reach this level. Inexpensive - ◀



Smile Screen

SMILES

Smile Software is still offering reduced prices on a range of software, including Sound Experiences at £9, Irons Toolkit at £5, Game Toolkit at £6, the Complete Toolkit (the two Toolkits mentioned plus Character Toolkit) for £10, and the master code "underworld database" arcade game Block for £2.

Smile Software, 10 Fir Road, Marple, Stockport M20 1QN. ☐



Sound Experiences

CHAR-ED

Chared, by Colin Eyles of Vide Reflex, is a text editor program designed as a utility to work with Toolkit II. The Toolkit II kit allows SuperBasic users to select character sets other than those built-in to the QL, as well as altering the pixel block size of characters. Chared, in addition to Toolkit's own facilities, supplies extra pre-defined character sets, the creative and editing of new fonts, pattern designs and use of new graphics in SuperBasic programs.

The program is designed to be easy to use, with a system of menus and prompts.

work that the user can learn to manipulate a quickly, without continuously turning to the manual sheets, which can then be clipped away in the QL's own Manual for reference on the pre-defined character sets when needed. The defining characters and processing the limitations of the QL's character grid is covered in detail.

Core Electronics is also offering the Toolkit II of £10.00, and Liberator Software's QLibrarian Basic compiler together for £24. Core Electronics, 860 St. Albans Road, Garston, Warrford, Herts WD4 8SL. Tel. (0332) 621162. ☐



☐ Char-Ed - text editor program designed as a utility to work with Toolkit II

GROWTH INDUSTRY

Superplant sounds like another utility-type character, but it is, in fact, a company which writes software on plants. Vide Reflex, a professional gardener for twenty years, found that his customers asked him such complex questions about plants and gardening that he began to feel that he needed a computer to answer them all. He was then inspired to write a series of data banks, based on the XChange Archive data base package, which would give advice on the choice and care of plant groups.

The five databases on the cover will flowers for the garden, fruit trees and berries, house and office plants, trees, shrubs and climbing, and flowering garden plants. Provide information about habitats, plant characteristics, soil types and plant pests. Mr. Reed, who has a keen interest in conservation, has included notes about plants which are attractive to wildlife, and trees and hedging shrubs useful for planning environmental improvements.

The databases can be bought as a complete package for £100, any one of the programs with the basic gardening module for £11.95, and an additional package for those who already have the basic gardening module for £10.95 each. The programs are available on microdrive or a choice of 1/2in or 5/4in discs.

Superplant Software, Managrove Nurseries, Managrove, Tregaron, Dyfed, Wales SY25 6QS. Tel. 087 423 210 (lines 11am to 5pm). ☐

LUCKY BAG

Pyratime Software is starting to release a library of cartridges. Featuring all kinds of useful programs, programming tips, mini utilities, routines and games used in by professionals and amateur QL users, particularly in SuperBasic. Called Bag of Tricks, the first two volumes contain respectively a character set, PCERS and PERS, a screen component, a Basic version of Pictman and various utilities (volume one) and a set of routines for timing files, drives in use and free memory space, more games, more graphics Toolkit extensions and more utilities (volume two).

Information about Bag of Tricks, and about subscriptions for future volumes, from:

Big Promotions Ltd., 101 Waverley Grove, London N3 7PL. Tel. 01-349 2764. ☐

PUBLISH OR BE DAMNED

AN EXCLUSIVE REVIEW OF DP'S DESKTOP PUBLISHER BY
HELEN ARMSTRONG, AND RON MASSEY ON HALLMARK'S
Q-WRITER FONT-CREATING PACKAGE

Put simply, the purpose of a desktop publisher is to provide text and illustrations, arrange them to make a presentable page, and allow that page to be printed. In most, at the very least, be a step up from a typed page with a microtyped border. I would say that the minimum step up implies graphic capture, justified and unjustified column layouts, and a choice of headline characters (if adjustable size). After all, you can do a headline (at least a good typewriter, a photocopier and some layout).

Desktop Publisher requires a full memory expansion, and incorporates vector graphics (headlines) from and right QWERTY fonts as standard. There are also integral graphic symbols (including a choice of eyes, for advertisements) and 100 pictographs again. What this latter means in reality is that you can use any of the graphic symbols as a pictograph, as well as for standard shapes. The way is paved for an almost bottomless supply of backgrounds, borders and patterns. The decorative fonts are proportionally spaced, but all character proportions can be modified horizontally and vertically, pixel by pixel, and descender/ascender lengths at will. All characters and graphic fonts can be merged with ASCII, QWERTY and 8088 options, inverted, solid or partly, mirror imaged, boxed, reverse boxed (wholly or partly), magnified up to 16 times in either axis (this includes the cursor path), striped or stippled, and rotated through angles of 90 degrees (pretty, in bits . . .).

Extra fonts

The program travels on two cartridges which may well carry a few extra fonts. Extra fonts can be imported. **Desktop Publisher** will load any ASCII file, plus Quill files with one ASCII characters, in fact, say the programmers Cliff and Andrew demand, anything which can be translated into an uncompressed mode. All fonts can be edited, or adjusted letter by letter during runtime.

Text can be justified pixel by pixel, which allows for very accurate placement of words from its drawings. (Incidentally,

vertically, sideways or even upside down) and carefully spaced text. Text can be justified, ranged left or right, or centered, made bold, italicized to the left or the right or inverted. There are four different styles of underlining, including double and single, vertical and horizontal ruled lines and boxes, columns of any width, variable line feeds or waves, and window-powered cut, copy and paste over text pages. Not only does the page scroll, but the contents of any window scroll as well. The program is completely compatible with Quill, and performs the full range of editing functions as Quill does. DP's preferred method of generating outside text and graphics, of course, are their own programs **The Editor** and **Eye-Q**, which I'll be having a brief look at. Text can be generated inside the program, and in the smallest text size and minimum line feeds (without actually overlapping) each page can handle up to 32K characters. A full page of text stores in about 20K, or one megabyte.

As well as generating patterns and line graphics, **Desktop Publisher** includes clip art for placing, and can import graphics from various sources including **Base2** and (if you have one) via a digitizer, all fully editable.

There are four different styles of screen cursor (partly for accurate editing, partly for fun), and a two-column vertical ruler appears on the main screen. A red-lined green grid can be called up. The working area scrolls and pans, and can be joystick-controlled.

Access to designer screens is fully hierarchical, and any user who gets lost or performs a wrong operation inside the editing levels can get out safely and quickly into the main menu without damaging the work or causing the program to lock.

Naturally, DP's price and joy, the **Turbo Superhacker Compiler**, was used in writing the programs, and Cliff told "We had to insert great long loops in places to stop the program from moving too fast for people to feel comfortable with. And then I freely brought in the Turbo update, and we had to put even longer loops in." More important even than speed, in my mind, is



the very complete set of status reports, along with the font graphic menus and instruction menus which are displayed to the right of the working area at all times. Although the program is fully menu-driven, nearly everything can be done with single keystroke menus (as listed). The cursor can be moved, and copy lock is indicated on screen.

Desktop Publisher supports two page formats and four different print modes, printing A4 and **Letter** in both landscape and portrait, with vertical and sideways printing options for ribbon. The printer driver is an usual directed towards Epson compatibles, but is modifiable for most other suitable printers (ie, not AppleWorks) in both serial and parallel modes, and with multiple page printing up to five times for a cheaper field.

The two packages which are being offered alongside **Desktop Publisher**, the **Editor** and **Eye-Q**, have already been around for a while. DP seems that **Desktop** does not require either of these programs to operate but, obviously, the dedicated programs have some facilities that no general screen designers.

Eye-Q is itself only 520K, and is a 'reduced' (but not reduced) style graphics assembler. The basic functions are point-based, cartesian, exact, fill, and outline (based on circle/ellipse, line) are a rectangle (black). Operation is by window menu and by single keystrokes - a great many functions can be performed on the graphics screen by the latter. For instance the way of the cursor (and therefore of the point-based) can be changed, using CTRL-B, CTRL-T allows the typing of text characters over the graphics screen in various different modes, and the program incorporates a text editor.

Screens can be saved whole or in part.



(window selected), compressed or uncompressed, formats, and fonts can be saved in Basic as well as in storage media, and with any extended QL more than one Qw-Q can be run at a time.

Status information is displayed in an emblematic status line at the top or bottom of the screen.

The Editor, now £28.95 (£30.95 for the expanded QL version) is a not-a-word processor. It is a text processor which can handle any kind of text file, document, program, as well as a range of special characters for handling ASCII and control characters as if they were normal text.

The great advantage of The Editor, as speed. The advance is also reflected by even waiting for certain wordprocessors (including the wanted) Manual PCW, mark used in this office) to scroll through, delete or move blocks of text is not a problem.

The program does two things (its own format on the one, except as the user specifies, and so 'handles' data travels with the target, which is then given to be handled by another formatting source, such as Desktop Publisher. This can then be generated for final embedding elsewhere, or through) is from other Qw-Q (and in particular) for both operation and formatting.

All the moment, Desktop Publisher will not take photographs or make the coffee, but they're working on it. It certainly will do almost everything you want from a DTP package, and in conjunction with Digital Precision's other programs forms a very impressive system. **Q**
Price: £69.95, with Qw-Q £144.95, with Editor £184.95, with both £129.95. Suppliers: Digital Precision, 222 The Avenue, London E4 9SE, 01-527 5485.

Unable to either a stand-alone program or as a background job serving a text editor, the current edition of Qw Writer is supplied with one thousand font styles, and in two configuration variants on one master microdrive cartridge.

Every Qw Writer's RAM expansion can configure the main program module so that only one or two selected fonts are held in memory at any one time. Fonts are loaded with the **RLQ...LOAD** drive.

Fontname/font...number command. Whenever a new font is loaded using a numeric font number, the previous font is cancelled.

Alternatively, users of expanded machines may opt to use the special main program module, with eight of the fonts built in, and may load up to a total of 12 fonts at any one time, each of which is identified with its own number code.

Switching between fonts is done by using appropriate code and can include any other printer control codes supported by the Qw Writer system.

Printer commands are initiated with Qw Writer's post-processor mode by adding a line to Qw-Q's or The Editor's text pages as **RLQ...USE** drive (and so on).

It is worth noting that in SuperBASIC you can do the same thing, but it is not as easy as the post-processor mode. The post-processor mode is the only way to do this. It is worth noting that in SuperBASIC you can do the same thing, but it is not as easy as the post-processor mode. The post-processor mode is the only way to do this.

All subsequent font changes are made by prefixing the font number required with the number "1". Typically, a command from SuperBASIC for changing from one font style to font four, a particularly good-style English typeface, is made by appending: **Print chr(25); chr(44).**

If used with an extension table supporting EBCDIC font styles and any of the printer control commands supported by Qw Writer may be used in the printer from SuperBASIC by prefixing a block of text to a particular sequence with the command **PRINT**, **PRINT**, **PRINT**.

Users of The Editor can produce an equivalent control code inserted in a block of text by inputting characters **<CTRL>**, **<SHIFT>**, **<C>** (generating The Editor's own character "1"), with an over-escape (2, for example), followed by any other Qw Writer control characters required.

Other commands supported directly

by the Qw Writer system include rules for the printer bell (7), tabulation (8), plus two additional commands indicating tabulation spacing, from Basic (12), select and delete (properties) printing (10 and 18, respectively).

Qw Writer's definition of unproportional spacing is that, when selected, the spacing of such character is equal to the widest character in the font. Selecting and for font controls the unproportional spacing option selected by a previous font.

Qw Writer's facility is a facility for selecting and deselecting character space out (17 and 18, respectively) and another facility for selecting either normal width or double width (15 and 16, respectively). The latter facility produces a typeface with increase of 23 times that of the normal width.

Qw Writer's fonts may be used with any Qw Writer compatible printer either directly from SuperBASIC or from within text management programs such as Peter's Quill or Digital Precision's Editor.

The only real limitation encountered with Qw Writer is that, if two or more jobs are running concurrently in the QL, they will receive all data from the

with type a screen

with double expansion

character data expansion with double expansion

character data expansion with double expansion

character data expansion with double expansion

character data expansion with double expansion

QLQ queries, sometimes producing unpredictable results.

An extension from review copy of Qw Writer is that it did not include a font editor for users having particular font or special symbol requirements, although Digital Precision have promised to provide a character editor for Qw Writer within the next three or four weeks.

A well thought-out way to get on with programs, my only criticism of Qw Writer is its rather minimal documentation. Qw is not a difficult program to get to grips with, quite the contrary, but, as with so much programs of this type, it is easy to overlook useful applications. **Q**
Supplies: TE Computerware, Stone Street, North Salford, Ashford, Kent CT25 6BP, 0800 81 2801.

COOL LOOK AT CAD

Edssoft's ICE has become such a standard fixture for serious Q1 users that not a few of us would have to think twice if the machine booted up first thing in the morning without the device in the right hand corner. Ice Controlled Environment, for the information of the others, is a Windows-type user-driven front-end program which allows you to LOAD, FORMAT, COPY, RENAME, etc. etc. your files without having to type-out "mkdir..." and the rest every time. The key/variable person's command list. ICE is installed in a plug-in DOS cartridge, so it boots virtually automatically, and it supports a variety of other tool software such as CheckIt, which allows that way multi-



EDISOFT'S WIMP SYSTEM AND RUBICON'S VIEWPOINT USE THE Q1'S GRAPHICS IN DIVERSE WAYS. DENNIS LEEK ASSESSES THEIR STRENGTHS AND WEAKNESSES

tasking, among other things, and ICE Toolkit, which incorporates ICE features in your own programs, all at a reasonable price.

Last year Edisoft introduced ICE's usefulness by bringing out a mouse-controlled version, along with two grades of mice. User-driven menus are ideal for people with a steady hand and no keyboard skills. Being the opposite, I generally prefer not to use them, but since you are committed to mice or indeed anything which can't be set up for single-keyboard commands, a mouse is a godsend.

The ICE mice have the basic MOS system already installed in the interface,

an alternative to buying the mouse and fitting it to a previously owned ICE. There are two versions, the Mouse at around \$40 and the "fully full sized" Supreme Mouse at around \$80. Both our samples worked pretty well, especially considering the adverse conditions in my working surface, which is not usually configured for mice.

Having tested the mice on ICE and CheckIt, and quickly getting used to moving the cursor around via the desktop, I went on to try out Edisoft's AndICE (Advanced graphics package). It was here that I had my first groove with the hardware which, like many other user documents, is perfectly clear if you know in advance what you are supposed to be

These three-dimensional computer-aided designs for the Elcomat 50," says the subtitle on Viewpoint's smart black and white packaging. Elsewhere in the comprehensive handbook, it reminds you that it makes sense to plot out drawings of any complexity on graph paper first. Apart from the numerous of the final output, CAD packages are only an advantage if they are flexible enough to make real settings in time and trouble. Viewpoint's handbook takes considerable care to orientate the user so that, without controlling any false sense of security, I found that I could start screen drawing without tears.

As it was a while since I had used a CAD package, I went for the demo first. Pressing F1 gave me a blue wire frame cube with the x, y and z co-ordinates in yellow and red. I wasted time trying to remember what x, y and z meant, but soon I dropped that and did as the instructions told me. I found that it was easy to rotate, zoom in and zoom out around the cube in larger or smaller jumps.

Using ALT with the cursor keys gives much larger increments, but with the alphanumeric keys it maps any further

program, so that rotating can be done in large jumps, and zooming is slightly more modest steps. I fully enjoyed the roller right off the screen, and then had a tedious job as my hands to bring it back again before I had realised that I could zoom it much faster by using F. All the movements can be repeated by holding the keys down. Reconstruction of a complex drawing after each movement in mode 4 graphics is by no means slow, but it becomes tiresome if you are doing a lot of manipulation, so the screen can be toggled to mode 4, where reconstructing takes place very quickly.

The second reconstruction is one of spherical polar co-ordinates which can be rotated about in and a clearer picture of what different axes and co-ordinates mean in practice.

Conventional screens can appear either in VIEWPOINT mode or in wire mode, and can be toggled from wire mode only, although it affects other screens. Between mode 1 and mode 4 graphics, wire mode accepts the instructions which build up the figure. The single three-dimensional shapes this is easy; the program provides a number of standard shapes: box, circle, sphere,

rectangle, line and a polygon with any number of sides between 3 and 10. There is also a mirror image command which speeds up the building of symmetrical forms, but must be treated with caution if you don't want to end up with a mirror image in the wrong plane - and although there is an immediate delete function, I haven't yet succeeded in 'wiping' a mirror image.

Other commands which speed up drawing are Join, which joins two numbered co-ordinates with a straight line, and Search, which enables co-ordinates to be accurately 'grabbed' and identified in the lower left hand subwindow (and also identifies the real whereabouts of the cursor, which by the very nature of the process is quite easy to lose track of).

Other commands display a set of eye axes over the drawing, or alternatively superimpose a millimetre grid in the same plane as the cursor. (To translate moves the whole drawing along one of the axes, and Display) moves the cursor instantly back to the screen centre, which can be an essential move if another manipulation has moved the cursor suddenly off screen. (X/Y/Z) allows text to be overwritten on the drawing. The text does not become

doing. The quibble, for instance, that it isn't entirely clear ARICE of the three programs profiled. RIGHT you are supposed to operate can be answered by saying that only a nobody would run the wrong file. But a user book should guide even a nobody through a leading program without confusion. Throughout, the rest of the manual, too many pages are referred to vaguely as out of sequence.

The nice replace manual ICE's double-effect single-click operation with the screen's left hand buttons on the mouse. In ARICE, the left hand button is used only to change the ink colour during drawing.

The QL's processing power means that it can handle complex graphics quickly. The mouse enables quick and accurate (depending on how steady your hand and eye is) drawing (more interesting).

Leading ARICE puts you straight in to a black screen with a tapping (red) white dot for a brush. This is the superintending screen for new aims, where you can position painting brush strokes while scrolling through the ink colours using the right hand mouse button, and moving the ink on and off with the left one.

However, these are the only two choices which can actually be made while in the drawing screen. All other changes have to be made through the main aim menu, which includes such items as shifting and clicking to and fro, which allow down the whole process. To take a simple example,

part of the drawing, but results (and prints) well of the screen position where it was intended. It can be removed helpfully by CTRL A, but not edited.

Colour is deployed by the cursor, and the colour of the next place of the drawing to be laid down can be controlled at any time via function key 1 and a menu. There is no colour fill function, and personally I found the colours more distracting than helpful in complex drawings. It occasionally helped to establish perspective - this is a matter of personal taste.

Colours already laid down in a picture menu can't be deliberately changed (although switching modes automatically causes the usual changes) helped, were it is on the screen, nothing further back than the last command can be altered without re-starting the entire drawing. (Right) remembers the last operation (this is effectively limited to the standard library shapes and the data function), but CTRL D remembers the last, and the user's manual kindly reminds the user to save the drawing regularly.

Solid three-dimensional figures (as opposed to wire outlines) are produced by halving line removal using back surface

doing a 'chuck on a post' routine, the 'fill' function has to be restricted from the main menu for every change of ink colour.

Using the mousehole brush, the colours can be changed pixel by pixel. The 27 screen magnifier is helpful here, but it can be done on the full screen if you have patience and good eyesight.

As well as plain ink (the usual eight colours) it made 8 and four to make 12 two colour effects, patterns and stripes can be obtained from the menu. ARICE simply gives a random juggle in the back of the brush, with a choice of five stripe densities. The IVE menu (which does give you visual indication of which ink colour you are choosing) - you just have to go through one menu to find it) offers a choice of plain, or any one colour mixed in regular stripes or one pixel here, then there borders.

Starting the last operation is done via the Fash menu, a window which appears on the drawing screen when the main menu is selected by pushing the middle button on the mouse.

RIGHT (our) allows changing of all or any of the colours over the whole or part of a screen. Selecting a part of the screen is done via cursor-and-pull down windows. This is useful for altering one colour to a small area, such as the colour of a piece of text. Unfortunately, the process is made more cumbersome because an

'alternative' colour has to be selected for all eight colours every time RIGHT is used, even when only one colour is actually going to be changed.

COPY allows areas of the screen to be badly transferred, duplicated and saved individually as files for future use. This includes an 8000000 function so that you can discard one colour, such as an unwanted background, from a block before you move it.

The standard offers several routes to the fact that ARICE uses all the available memory on an unexpanded QL, but this fact not withstanding it would still have liked to see some status information, for instance, ink number and x/y cursor position, as the drawing screen to save a lot of clicking and error hunting about.

For graphics, covered down by the select principles - but I still found ARICE enjoyable and straightforward to use, even though the manual is like a paper mine. (The manual does give right entries, all concerning the mouse, in the last three pages, and only two entries for the other two for pages) And as £18.95 is a good value and an attractive addition to ICE and the RICE. There is also the unimpressive version with only minor differences to the mouse one - I don't if you have a talent for drawing curves with the cursor (ugh).

Supplier: Edmonds, The Office, Hall Farm, North Ealand, Loughborough.



eliminated, which only works fully for single convex polygons. Counting the vertices and storing the co-ordinates is a tedious process, but now this is done the hidden line function can be toggled. According to the handbook, a choice is a single convex polygon and a jet almost isn't, so the hidden lines won't be well for more complex drawings. Hidden lines can be advanced, viewed and saved by stages, which assists in reaching the desired effect without losing up.

Finished drawings can be saved as three-dimensional co-ordinate files, and printed out as they appear on the screen from the H menu. A reasonable amount of information is given on printer control code in the handbook, with examples for

Epson codes. On-screen images can also be saved to a machine code sub-system for use with other SuperBasic programs, and detailed instructions are given for doing this.

Viewpoint is not a professional CAD package. There is no facility for drawing your own library shapes (or inclusion in other drawings), and the grid calibration is not accurate to the nearest micron, but from my electrical drawing department, and some help right for being a cheapie, because you can't buy that sort of package for less than several hundred pounds.

Viewpoint is very neat and tidy, the screen resolution is good even on my low-resolution screen, and the hand book has been written with great thoughtfulness and so far as I can see very few and very trivial mistakes.

The original version of Viewpoint from November 1981 is loaded into a permanent memory position, but Edmonds tells me that there is a newer version which will run alongside other programs in the QL's memory. **4**

Price: Cambridge £18.95, also £29.95. Supplier: Edmonds Micros, 11 Beaconsfield Road, Sherfield St. Bn.

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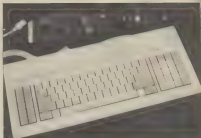
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CHAIRMAN OF THE BOARDS

The QL is a natural for a replacement keyboard - many of its full-sized brethren do have a one-way design, the resulting black holes resembling sharp-edged elephant traps for clumsy fingers, transforming the would-be touch type into a frustrated debutante.

ABC Electronic's Deluxe keyboard, marketed by Digital Precision, is an extension (rather than a replacement) keyboard. The Deluxe started its design life as an IBM PC-XT device, which means that, with the interface provided by DP, your QL is joined with a professional quality keyboard.

There are six function keys to the right of the main keyboard, which correspond to F1-F6 and SHIFT F1-F6 on the QL, and are also user-definable. On the left of the keyboard is a standard numeric keypad complete with scrolling keys on the 5, and those 0-9 keys - a backspace key which derives the character to the left without using CTRL. The whole unit is about 30mm high, and there is a pair of strong integral fold-down supports at the back of the base for better keyboard tilt. Just they won't fall off.

The key feel is fairly light but not loose or spongy, and no bounce. Trying it for speed, I found that the screen input kept up with the fastest typing speed I could manage, and stopped where I stopped. Freddy Vachon of DP was prepared to be a bit less thanly pensive, smacking the keyboard vigorously with the flat of both hands a few times. The input got well ahead of the screen, but the buffer copied

adequately and spent the next 30 seconds or so quietly catching up.

"The Schen keyboard was a valiant attempt, but it costs thousands just to set up a mould for injection moulding, so they have had to opt for vacuum moulding. Why make the cheap journal when you can buy a high quality, industry standard injection moulded keyboard from someone who already has a production line, and concentrate on the interface?"

Installation is not difficult, but it requires a certain amount of care. Having opened the QL, ribbon cables which connect the present QL keyboard must be disconnected and the 40-legged ROM must be eased gently out of its holding socket and the new chip nuzzed, an integral part of the interface, carefully located in the socket without missing and bending any of the legs. Once correctly located and driven firmly home, the ROM does look like the new looker, and the interface becomes a permanent part of the computer. The interface board is designed to fit over and around the present components without bending anything aside, and with or without the aluminium plate under the keyboard in place.

The interface goes through any available port in a perpendicular slot in the case - the ROM port is recommended, as there is a plastic pillar just inside round which the cable can be made fast before sliding the connector in place.

The new test connects via a 5-pin DIN socket to the corresponding plug on the end of a coiled lead, at the keyboard

Apart from the aforementioned keys, there are one or two which do nothing (a by-product of their IBM-type provenance). The five key keys out the keyboard input. A full screen reset can't be done from the extension keyboard, as the RESET button on the QL acts directly on the internal hardware. All the QL's characters are supported. Caps lock and Number lock (for the keypad) both have LED (QL) indicators.

The draft of the user documentation which we use is well up to normal DP standards of obsessive detail, including instructions for riding yourself of state before opening the QL, and advice about what to do if an excess of peripherals causes overflows to the QL, including an offer to replace the voltage regulator as a testing solution. This is sound practice for anyone with a QL or a Spectrum, moderately, and in the QL, it doesn't even require soldering.

DP stresses the Deluxe's full compatibility with QL80 and with all modes of the drives, memory expansions, printer interfaces, mice, etc. With the keyboard which is available in black, as well as the usual beige/grey, they are also giving away a 3 1/2" floppy cartridge.

Despite Sage Systems' plans to launch cheaper QL replacement keyboards, it may well be that if you want the best the Deluxe keyboard may be the one for you. ◀

Price: £89.95.
Supplier: Digital Precision, 212 The Avenue, London SW 9SZ, 01-877 5483.

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Fail Safe

Keith Irving

The interrupt driven Spectrum routine provides a secondary break facility for those machine code programmes

that find their tails trapped in an endless loop. Turn it on with RANDOMISE 1000 85020, and off with RANDOMISE 02010.

To leave out of a program press Symbol Shift and Abort together to return to basic.

```
10 REM POKE "FAIL-SAFE" CODE INTO MEMORY
20 CLEAR 64999
30 FOR N=65000 TO 65000+69
40 READ X: POKE N,X: NEXT N
50 DATA 62, 253, 237, 71, 237, 74, 201, 0, 0, 0, 62, 63, 237,
71, 237, 94, 201, 0, 0, 0, 0, 0, 0, 0, 254, 0, 0, 0, 0,
0, 237, 214, 177, 245, 255, 243, 62, 127, 219, 254,
230, 3, 40, 7, 241, 193, 249, 225, 251, 237, 77, 241,
193, 209, 225, 251, 1, 0, 120, 11, 120, 177, 52, 251,
17, 190, 20, 195, 153, 10
60 REM SAVE THE 70 BYTES OF CODE FROM ADDRESS 65000 ONWARDS
70 REM RELOAD WITH "CLEAR 64999: LOAD "name" CODE 65000
80 REM INTERRUPT ON = RANDOMIZE USR 65000
90 REM INTERRUPT OFF = RANDOMIZE USR 65010
100 REM TO CALL THE ROUTINE PRESS SYMBOL SHIFT+ABORT.
```

Sound Sampler

Keith Irving

This Spectrum program lets you sample sound for up to four seconds. Sampled speech is reasonably clear.

Quality could be greatly improved by the use of an external filter.

Press B to record the sample and P to play it back again.

```
10 REM POKE "SAMPLER" CODE INTO MEMORY
20 CLEAR 64999
30 FOR N=65000 TO 65000+67
40 READ X: POKE N,X: NEXT X
50 DATA 33, 252, 120, 14, 253, 243, 6, 0, 219, 254, 7, 7, 203,
10, 18, 240, 0, 0, 0, 0, 114, 35, 124, 105, 194, 230,
253, 251, 201, 0, 33, 232, 120, 14, 253, 30, 72, 92,
15, 15, 15, 230, 7, 95, 243, 120, 15, 15, 15, 07, 6, 0,
122, 179, 211, 254, 243, 10, 18, 240, 35, 124, 105,
194, 31, 254, 251, 201
60 POKE 25650,0: CLS
70 PRINT FLASH 1:AT 11,0:"PRESS":FLASH 0:"R TO RECORD"
80 PRINT AT 13,12:"P TO PLAY BACK"
90 IF INKEY$="R" THEN PRINT FLASH 1:AT 11,12:"R": RANDOMIZE USR
65000: GO TO 70
100 IF INKEY$="P" THEN GO TO 90
110 PRINT FLASH 1:AT 13,12:"P": RANDOMIZE USR 65010: GO TO 70
```

Selective Copy

Adrian Short

This routine for the Spectrum and any ZX Printer compatible emulates the COPY command, except that it allows you to copy any part of the screen.

When invoking the routine use CLS:AT 0:120 first. To use the routine enter ROWS 0:137, top line, ROWS 0:138, number of lines and then: COPY (SP) 0:139 to perform the copy.

```
10 REM *****SELECTIVE COPY*****
20 REM AT 0:137:138 14:4,67
30 CLEAR 65135
40 FOR N=65135 TO 65138
50 READ X: POKE N,X
60 NEXT X
70 REM "SLOCOPY" CODE 65135:47
80 DATA 30,0,30,34,239,104,305
90 DATA 14,305
100 DATA 237,230,225,50,40,300
110 DATA 0:17,0,0:1,0:0,0:240,0
120 DATA 210,17,204,0,35,209,24
130 DATA 194,233,230,205,205,14
140
```

COMPUNET TO MOVE TO NEW MAINFRAME

Compunet is always changing and adding new areas of interest to subscribers. Now, as Graham Ekins reports, they are preparing for their biggest change yet.

Compunet could never be accused of being a static network, and from the very beginning it has been adding new ideas. The fact that the access software can be changed so easily by a simple automatic download of the latest code makes any innovations that much easier to implement.

Compunet is now working on its biggest change yet, moving to a new mainframe which means that the latest ideas are having to wait their turn. However, the new mainframe is still on schedule (physical in the computer world) for its summer launch.

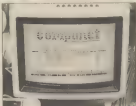
As the users can create their own directories and have their own new letters, the way in the new mainframe has not affected the growth of information spread offered groups (SIGS) or programs available in text. Compunet seems to have grown every time that you login, so it is easy to get used to one particular area or even a few areas and miss the changes going on in others.

Routes to others are given at the bottom of each directory to encourage you to jump to a different maybe unexplored part of the network, with the touch of a function key. Alpha gates, similar to those which Ardent has just introduced, can make it easy to move around from one area to another and avoid the long slog through directory after directory.

Even with such ease of movement it is very tempting to settle down into a set pattern as I tended to take a good look around and say what's happening. In my next report on Compunet I'll tell you what I found in the Demos area, where I'd been told on the ones that are not to be missed. This time however we'll look at some of the areas on the rest of system, many of which are new to me although many are old friends which deserve another look.

I would guess that most people start their on-line session by hitting GOTO in the directory and typing NEWS. This is where the editor of Compunet writes about the latest new pages to see (many of these have been given quite a short life by the

editor that updates them) and so the news itself only remains for a couple of weeks at the most and there is normally an updated news file at those times every week.



it is very difficult for the editor at one time to update it so if you feel that your input/maintenance deserves a mention then drop a line to me on the BBS DEMO.

If you like your news to be about medical hardware, software and computer gadgets then the place to look is the large and growing directory from JAN 1. A good one is the unusual file of The Doctor Frog Page, but GOTO FROG will take you straight there.

Amateur Radio enthusiasts have five news channels for in the RADIO area, there is a Closed User Group but a small one of players where you entry to the area started by GAFM. Ardent news can be found in ARDMS and other news alpha gates use SIGS and COMMS are also available. You'll probably find an area covering you about every ethnicity or be that matter equally, where that you could think of (if) if you don't then you can always start one!

If you prefer to be entertained instead of educated then there are a couple of other new games to try. SCAR will lead to the West in Taurus from SIGS where J712 and

others are very profile in Shockwave (GOTO SHOCK). Further entertainment with a science fiction edge to a lot of it is in COMMS where you will find well developed space battles like Rich Higgs, Astronomy and Dr Who (GOTO HING, AS-180 & WHD).

Over in the Letters On There is everything to do with not playing games. The multi-user game MUD of course and BALLY which is a small section of MUD which can be used on a weekend morning for just 50p per hour but you will also find things like the Play by Mail directory (GOTO PBM) and the army where Zapper gives you advice for making a move, a friend is on hand for the word generally is not long for a response they have given it the game CARB.

There are many places to look on the system apart from NEWS to find the latest updates, my GOTO's which is a list of page adverts or the

Chat-on-line area (GOTO CHAT) where many Compunetters promise their speeds. MUD gives you a good starting point for any voyage around the network and also sets many to the Alpha Editor.

All of this travelling around what has now become a very large database, considering that it is entirely dedicated to only one main, has caused me much for you, then I can recommend setting down to a good and thought provoking read in the News area (GOTO ARDMS) where other news have to be given their news in such controversial areas as religion, the channel tunnel, women is compelling, AIDS education and South Africa. You may well find yourself quite bound to access your own opinion by venturing into its discussion.

I hope that there has been something mentioned on this page that will be of interest or added to your own list of calling places. If you can't wait until the next Compunet article to tell you about the news, to which Compunet has become so well known, then I'd direct you to Compunet on Page 222222 and KRY TV Demos World on Page 222222.

2-Bit drumkit for the ST

2-Bit Systems released a drum package for Atari 8-bit micros some time ago. Now it has revised that package to work with the ST. Mark Jenkins looks it over.

A few months ago we looked at 2-Bit Systems' drum package for the Atari 8-bit micros. Now the company has rewritten the package to work with the ST and has taken the opportunity to launch several options for different musical applications.

2-Bit has also thrown in its bit with Microbook, which will be distributing the ST Digidrum both here and in the States. No doubt this will give the company much more exposure, which is bound to be a good thing.

The laddy-coloured Digidrum box isn't bright purple, actually, you can't miss it; contains just one disc and a handbook, and the optional Sample Disc 1 has a loader listing the sounds contained therein. There are 41 sounds included, which for the sake of completeness we list below:

1 Bass	15 China	30 Cast 2
2 Cello	16 Clonm	31 Cast 1
3 Choir	17 Elephant	32 Cast 3
4 Clav	18 Eclonm	33 Cast 4
5 Coccoth	19 Eclonm	34 Cast 4
6 Computer	20 Eclonm	35 Clonm
7 Cnk	21 Hiccup	36 Clonm
8 Clav	22 Hiccup	37 Clonm
9 Clav	23 Hiccup	38 Clonm
10 Clav	24 Hiccup	39 Clonm
11 Clav	25 Hiccup	40 Clonm
12 Clav	26 Hiccup	41 Clonm
13 Clav	27 Hiccup	
14 Clav	28 Clav 1	

You can arrange these sounds into two complete kits - for instance, using all the 8-bit-style sounds to create a 8-bit-style electronic kit, or using the basic bass, snare, cello and so on to create a Latin kit.

A total of 16 sounds can be loaded and stored into 16-bit sounds on the hard disc to suit your AT. Additionally, you can run the program on a 68000 or 68010 with a colour or monochrome monitor or TV on the case of the 68010/10.

The instruction handbook is a little on the concise side (it's only a few sides long) and is a bit repetitive in some cases. For instance, it's not exactly true that Digidrum will 'load your Atari ST into a high quality sampling drum machine'.

You can't do any sampling yourself - you need the optional Replay sampling system, which has been used to create the sounds supplied, sampling at around 20kHz.

The default kit on the main disc consists

of bass, snare, cello and cello, hi-hat, keyboard 16 and high cello low and high, bongos and cast. 99 patterns can be stored and there can have between 4 and 32 beats. Patterns can be entered in step time or real time and linked together to produce a song of up to 70 patterns.

To create the cassette-length of a song, you can also repeat a single pattern within the song to take a whole sequence, and it counts everything can be timed to disc.



If you do have the ST Replay cartridge, you can connect its phone out socket to your 4-b - otherwise you're limited to listening to samples via your monitor. If you submix (Drum 1992) you'll hear a drum song and you can use the internal 16-bit control monitor or link to the Replay cartridge sound output.

The package doesn't use much of the 68k environment and a fact which makes it portable. The cursor arrow keys are used to move along the tape-the-sampler options, which are speed tempo, edit song, play song, and pattern's used save and edit. The rest of these simply repeating some of the specialisation from the handbook.

Some of the terminology in the other options is very poorly chosen. When 16-bit options to set speed is actually sampling rate, which can be set to 20kHz for the highest quality or 10kHz for the longest use. All samples are described as being 100% in length - perhaps that means 100%

When we do get on to what you and I might call speed - or tempo, if you like - we find that 2-Bit has a few it sample from one to 16. But it is 16 beats or slower than one's that logically enough (7.5 is slower - the logic being that the tempo setting included the number of 16-beat samples taken between beats).

But tempo is a slightly more variable device, calling up a long list of 16 patterns together with the number of times they should be repeated and a suitable tempo. Figures are entered using the numeric keys and you have to go along a whole line, and you're finished if using the numeric keys - in other words, you have to enter the pattern number again until if you only want to change the number of times it repeats.

You can write a complete song using the 16-bit tempo menu and have the same pattern on the pattern menu. Patterns are entered on a grid showing any 16 sounds entered against up to 16 beats. The Digidrum package can sound two voices simultaneously and there must have samples assigned to them as voice one and voice two. If you attempt to play the same channel twice then the 16-bit entry will be deleted.

Granted, the demo does show that you can come up with some complex patterns using just 16-bit voices. If you prefer to enter beats in real time, just go to the real time option and you can enter beats by tapping F1 (for whatever sound is currently assigned to voice one) and F2 (for voice two).

You can load and save a song, a list of voices, a pattern or a song, as the method of sampling sounds to songs is quite flexible. There are a few disc slots, each layer, mainly dedicated to producing the list that you need a full 16 samples taking 2000 of the space.

During playback the package sounds pretty good, and you can create song and sample songs quite quickly with variously bright, crisp sounds. However, I'll be very surprised if there were any musicians on the 2-Bit team - the tempo experiment, method of pattern entry and songs, lack of pitch control for the stored sounds, logical 16-bit music and measurement of the hard disk are all repeatedly unimpressive.

Digidrum costs £19.95 and Sample Disc 1 costs £14.95. More information from Microbook Ltd, PO Box 88, St Asaph, Gwynedd, LL25 0JG, 0746 63202.

If you have any queries or tips for this column, please write to Mark Jenkins at Popular Computing Weekly, 12-13 Little Newport Street, London WC2N 6PP. Mark would also welcome examples of your own music on audio or program tape, or disc.

100

NEW RELEASES

Abstract

Program: Four Year General Degree
Completion: Approx. 120 Credits
Minors: July, Fall, Spring, Adaptive
Phone: (408) 244-2121

Early, Caution 7 and 8 signs Highway 200 with booming blues and 100 mph in zones.

Finally, you might consider my friend's former student, the CEO of Clorox, programmed to "clean" his.

Placed in a state of suspended animation, the 44-million-watt power generator took about 10 days to get the plant back to normal, says a spokesman. "After going in there, if anything else or simultaneously the plant, it was considered a good quality," he says.

After slightly over a century of the original highway (constructed from 1916), it stayed in shape, the same through and back to the late 1970s of graphics that was a pretty good-looking 1950s-style road.

Condition is a specific follow-up call with any diseases from **Spencer's surgery** so that you stay vigilant of. Including symptoms, but it doesn't tell you whether you developed a Condition. For surgery, patients before the follow-up period is the full set of reasons that led to a result.

Partridge ■ is quite unusual when Mike-Glen was going through his morning class at Delta and saw me - a student manager at the Delta with a job as a waiter in the dining room at Delta. He said,

Lastly, Greenway has been
furthered by the International
This is a great place to visit
the old you (and the new)
and the old you (and the new)
and the old you (and the new)
and the old you (and the new)

Wiederholter hat zwei ganz kleine, nicht bewachtelte, aber sehr angenehm duftende Blüthen im Juni und Juli zu sehen.

Program Description: Type Application Form (2-60) (Page 09-05)
ICPC Supplier ID: 4 (See Software, Maintenance, Services, CD Delivery, Support)

Abstract: [REDACTED] was added to the CMC with a liquid cyclodextrin based on the test data.

Pittsburgh: Andrew Ryan, Editor
 1924: 28 32, Supplement: 1
 Brooklyn: Arthur Modell, 28-32
 (and 1924: 28 32)

Unit 3/3 Holland Way, Heston
Barnet, Middlesex HA5 5AA

THE **WORLD'S** **LARGEST** **BOOK** **STORE**

Program: International Typing Machine
Model: C1400, Supplied: Typewritten
Address: International Typing Machine
Lester Type, Type 4, Page 10 of 11

Pharmacia and Upjohn are the 100. But it is a really important sign that some other kind of business is now more than merely secondary to the pharmaceutical industry. Completely different is what it is not creating anymore and it is not.

4473136

Program Manager's Career Type: An early-adventurous person seeking challenges and goals. Likes to learn, to try new things, to work with people, to work in a team, to work in a dynamic environment. Needs to be able to work in a team, to work in a dynamic environment, to work in a team, to work in a dynamic environment.

4-800-352-7228. Also featured only playing instruments from 1950, which included a hand-cranked organ on the stage - a real party girl for organists who love vintage gear.



Another business's behavior was not all good and another had not yet met the Commission for a possible strategy to 2045, the ECU thinks.

Programs: *Market Research Type:* An online survey (1000+ users) CRM software. **Supplier:** *Company:* Software 2. *Contact:* Contact: info@software2.com 800 555 1234

BNCB

Programs Computer and Type
Ecology Price 0900 (hard copy) -
 now more **Ecology Monitor** Soft-
 ware 4/15 The Swamp, London-
 South and

Each entry illustrates a different style, from
 ultra-modern to traditional, and the designs

Commentary 64

[illegible][illegible]

It's interesting how taking a sideways look at a particular game format and just changing one single aspect it can make such a difference to the gameplay.

-Jason Jones has taken the simple arcade adventure, maze game - and played around with the physics and friction aspects of the idea with *Kinetic*. As your hyper-craft moves from corner to corner (there are 41 'zones' in total), instead of the constant downward pull of gravity that dominates in most games, gravity and friction vary by each zone.

In one room, for instance, there are two centres of gravity – one placed on the left of the screen, one on the right – which makes manoeuvring kind of difficult. In others, instead, cinematic friction means that moving is the *making your way* through space.

It is your mission to put out this abnormal state of affairs by collecting the three letters that spell out the 'word of power' (the mind suggests) and then gathering them into the hands of the great kinesthetic - wherever it may be - who will put things to rights.

As in most games of this type, things may be picked up and used to aid you - like a chemical spray that will clean away all the numbers, a deflector shield that will fend them off and beat of all, the B2 control housing that will nullify the worst effects of the atomic reactor.

You've got three lives - and as soon as your power gauge goes down to zero, that's one life gone. Some static objects will kill at the slightest contact though - as a belt loop with the handle is essential.

Released on the full price Fished label, written by home West German programmer Jochen Jorgens (kicked only by a 48K Spectrum, would you believe), not on Spectrum, Amstrad CPC and Commodore 64.

It doesn't make sense - but if you like the kind of average casual eating, it offers enough that it has to make it worth paying.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

[illegible]

Program: Medical Field Studies
 Entry: 2005, Duration: 18 Weeks

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NEW RELEASES

Continued from page 45

fantastic graphics on the much less than which has you (and) robot both in action in a superb 3-D scene. Wonderful. These machines do. Almost. Supermarket play and handle. Looks good.



Program The Lord of the Rings: The Fellowship of the Ring Type Amiga
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3D image that takes the best of the best. This is the best.

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The game's playability, which is the Commodore 64's best.

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Smaller than the one on the Commodore 64C, one on the Amiga, and the Amiga version. None of them. But you might like to find it a bit.

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Smaller than the one on the Commodore 64C, one on the Amiga, and the Amiga version. None of them. But you might like to find it a bit.



They said it couldn't be done - but we did it." So said one Richard Kaps of Software Creations, one of the up and coming newer software outfits, with the blizzard of grins on his face. Richard is a happy man, and playing Sentinel on the Spectrum, you can see why.

The thing has been done by Software Creations as well as it possibly could have been on that system and has given thousands of Spectrum owners the chance to experience what the computer price in general have been having about since last autumn, when the BBC version was released.

In case you missed any one of the several top releases in Popular (that, too, Sentinel is an abstract game of conflict set in a Macian (Macian) style environment - but instead of looking on from outside the landscape, you are literally placed right inside it. Your opponent is a figure placed on a patch right above the clock surroundings - the central.

The game is all about energy. Your ultimate task on each level (and there are 10,000, yes, for thousands) is to destroy the central by absorbing its energy. To do this, you must find a way to get higher than it. To do that, you have to create stacks of boulders (according to two energy points each), then create a new robot "being" and transfer yourself into it.

Now when you are all gaining three, and look forward to about (plus one) to replenish your energy supplies to make your next move. All the time this going on, the central is slowly rotating like a slowly lightbulb, stealing energy from you if you should not within its zone. Get the idea?

With a single central, it's a stimulating exercise in these dimensional visualisations, where there are six - it's blind panic.

On the four existing versions, Amstrad GPC II probably the best, but the more display on the Spectrum (and you can change that colour at will) is pleasing enough and well drawn.

In all, it's a great little implementation of Geoff Crammond's original - highly recommended for anyone that's looking for the jumpy (jumpy, jumpy) a little bit of hell.

John Cook

Continued on page 46

Keep it simple

I was rather disappointed - to say the least - when I found that my copy of *Leather Goddesses of Fantasy* didn't contain an infotape (or that the infotape, and, of course, it's the best one could expect from such a third and fantastic game, has even a hint of leather paint).

Instead, I had to content myself with a pair of 3D glasses, a scratch-in snuff card and a 3D game, which made my eyes go cross-eyed whether I was watching the space or not. As for the scratch-in snuff card I just made me feel nauseous. Such is life.

Though *Leather Goddesses* is typical of Infocom adventures, it also represents a distinct trend in computer games. No longer do you open a computer games package these days than a miscellany of extraneous matter (the less generous would say 'garbage') tacked on to you.

Somewhere beneath the capsule playguide, the non-on logo, the A3-sized poster, you eventually find the cassette of this - yes, that's right, the reason you bought the package in the first place.

Wise before you, however, if you're ever foolish enough to expect everything to go back in the box just as you found it. The package designers, it's clear, go to amazing lengths to ensure that what they include in the package automatically expands on opening. Consequently, it's just about impossible to get everything back in.

Take Brian Clough's *Football Fortunes*, for example. The board is a brilliant piece of lateral thinking. But after one has divided all the player cards where the hell does one put them?

And if it's not novelty it's novelty, the kind that Hamelin, for example, is so fond of. New Hamelin adventures are some of the best, but their novelty? Pass me the waste paper bin, please.

What's more, more interesting is that you have to flip through these large literary engenders just to get into the game. (Come back, Lancelot, all is forgiven.)

So the question that must be addressed to the computer games industry is this. Are all these extra bits and pieces really necessary?

The answer is bound to be unambiguous. In Hollywood films (one of Infocom's more recent adventures), for example, included in the package is a letter from Aunt Hilda, guards and a signed photo of the famous Buddy Burbank. But what are we supposed to do with the photo (one that is also included - stick it in a lockbox)?

Some would argue that such material helps to give credence to the fictional world of the game, and Post's a certain amount to be said for that. Such material definitely helps some players feel that way into their assigned role. But without novelty or novelty would it not be possible to buy these already expensive games that much cheaper?

The fact is, whether *Leather Goddesses* contains a box-up-doll or not, it's the game itself that gives value for money and not all the accessories that come with it.

Julia Henderson



Puzzle No 266

Janis was investigating the properties of 'nearly equilateral' triangles. A 'nearly equilateral' triangle is one in which the sides, instead of being equal in length, differ by just one unit. In addition, no side may be longer than the other two sides added together.

The smallest such triangle, therefore, is one with sides of 3, 4, and 5 units, and an area of 6 square units. But surely, you will argue, a triangle with such dimensions is nowhere near an equilateral triangle.

In this problem Janis would agree, but the next largest triangle in the series, and remember we are only interested in those triangles with areas of an exact number of square units, is one with sides of 13, 14, and 15 units. By the time you reach the three triangle in the series, having sides of 51, 52, and 53 units, only close measurement would differentiate it from a true equilateral triangle.

Can you determine the fourth triangle in this interesting series?

Solution to Puzzle No 261

Jim was born in 1948, when Bill was 30 years old. Jim's birth year was in 1973, when his father, Joe, was age 26. Therefore Joe was born in 1971.

Starting with the current year as Jim's year of birth, Bill's age is calculated using the top 8. As possible ages are then subtracted from Jim's current birthday until Bill's date of birth. This date is then added in the subsequent for probably, it passes this test, the procedure is repeated with all possible 'square' ages for Joe.

The first set of figures with all dates prime and both birthdays square are printed out.

Winner of Puzzle 151

The month's winner is Helen Taylor, of Chester, who sent answer C16.

Rules

The closing date for Puzzle 156 is May 88. Answers should include a program listing if possible.

Jim was born in 1948, when Bill was 30 years old.
 Jim's birth year was in 1973, when his father,
 Joe, was age 26. Therefore Joe was born in 1971.
 Starting with the current year as Jim's year of
 birth, Bill's age is calculated using the top 8.
 As possible ages are then subtracted from Jim's
 current birthday until Bill's date of birth. This
 date is then added in the subsequent for prob-
 ably, it passes this test, the procedure is repeated
 with all possible 'square' ages for Joe.
 The first set of figures with all dates prime and
 both birthdays square are printed out.
 The month's winner is Helen Taylor, of Chester,
 who sent answer C16.

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SOFTWARE**

HYDROFOOL

"...stomach churning out for..."
The Nintendo Arcade Review

"...A game for the hard
of hearing..."
Monthly Magazine

"...What's Kipper? What
does he do for a living..."
Daily Star News

"...Save me a hand
Hydrofool and people are a
serious crowd..."
The Lightbulb

"...Very Nice..."
Society for the Advancement
of the Electron

"...Could have used the
water tank..."
Daily News



Featuring

HYDROMATION

SPECTRUM £7.95

AMSTRAD £8.95

AVAILABLE MID-MAY

Fresh from his dismal triumph on Knutz Folly, Swoove is thrust onto the watery world of DEATHBOWL, a planet which, for no good reason, has been converted into a gigantic aquarium.

Will Swoove succeed in his mysterious mission — or will the Great Bowl-Keeper pull the plug on him?

HYDROFOOL is a fast, 3-D, seek, chase, puzzle and laugh game, featuring the fabulous but irrelevant HYDROMATION.

